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PHOTOGRAPHIC EMBELLISHMENTS.

January. Cabinet Portrait—Miss Adalina Patti. By C. REUTLINGER, Paris, France.

February. The "Fifty Dollar Prize Picture." By T. R. BURNHAM, Boston, Mass.

March. Competing "Prize" Picture. By J. H. KENT, Rochester, N. Y.

April. Cabinet Genre Picture. By GIHON & JONES, Philadelphia, Pa.

May. Cabinet Genre Picture — "The May Queen." By A. J. FOX, St. Louis, Mo.

June. Cabinet Portrait—"Rembrandt Effect." By W. J. BAKER, Buffalo, N. Y.

July. Landscape View. By GEORGE WASHINGTON WILSON, Aberdeen, Scotland.

August. Cabinet Genre Picture — "The Little Flower Girl." By ROBINSON & CHERRILL, Tunbridge Wells, England.

September. Four Views of the Solar Eclipse, August, 1869. By Prof. HENRY MORTON, PH.D., and party.

October. Cabinet Portrait. By WILLIAM NOTMAN, Montreal, Canada.

November. On the Merced, Yosemite Valley, Cal. By EDWARD J. MUYBRIDGE, San Francisco, Cal.

December. The Mount Washington Railway, White Mountains. By KILBURN BROS., Littleton, N. H.

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be *shipped* or *unshipped*, according to the way in which we wish to use it, by a single movement.

In the struggle for life which goes on between stereoscopes and all other contrivances, as much as between the living tribes which Mr. Darwin has studied, I think I see that my little despised and rejected instrument is killing out the box concerns as the brown rat kills out the black rat. The large cases for showing a number of paper or glass stereographs, mounted so as to revolve by turning a handle, are, of course, not superseded by any instrument adapted to hold one picture at a time. But everybody who has one of the large cases, and many who have not, want one or more of the smaller kind, and I think those who use one of the new form will not be apt to return to the other.

I contrived another form of stereoscope like the first, but with a gilded, slanting diaphragm with two oval openings, so that the effect was that of seeing the stereograph through a round window, with a golden light on it reflected from the slanting surface of the diaphragm. This, I showed also to various dealers, as a form of stereoscope that might please certain exceptional amateurs. Some time after showing it, I found the so-called "Bellevue" stereoscope in the market, which I had good reason to consider an imperfect attempt at a reproduction of the pattern I had somewhat freely exhibited. The effect referred to, of cutting off all the borderings of the picture, and throwing (by means of the *slanted* and *gilded* diaphragm), a Claude Lorraine light on the stereograph, is, in many cases, very striking, but, for common use, the simpler form is preferable.

In the rough specimen I send with this paper, the "Claude Lorraine" diaphragm is a movable attachment. This is the oldest stereoscope in existence of each of the two forms which I claim as of my contrivance. Little creditable as its workmanship is to my manual skill, I have a certain respect for it as the progenitor of a great multitude that no man can number. As I have made the public welcome to both my stereoscopes, so far as I am concerned, I think I have a right to tell their story. A slight claim on the gratitude of mankind is better than none, and I am content that mine should be classed somewhere in the same category as that of the young man who informed Mr. Dickens, with a flush of modest pride, that he was the son of the celebrated inventor of cold-drawn castor oil.

OLIVER WENDELL HOLMES.

BOSTON, November 25th, 1868.

On the Reproduction of Drawings Without a Lens.

OUR readers have heard a great deal about the merits of the different kinds of lenses in the market for copying drawings, and some of them probably think that the only way it can be done by means of photography is to use a lens. That, however, is a great mistake. Paper negatives, larger than any plate we have ever known to be manipulated, are made in large quantities every day without using lens or box, and much more quickly and correctly than could be done in the ordinary way.

The process is not a new one, and is familiar to many, no doubt, but is novel to many more.

During a sojourn in Washington in July on business well known to our readers, we visited the photographic establishment connected with the Treasury Department, which is under the superintendence of L. E. Walker, Esq. We say *establishment*, for the building occupied by Mr. Walker and his assistants is a new one, built expressly for, and planned by him, is one of the most cosy, convenient, and best-arranged photographic studios we have ever seen, and well worth taking pattern after by those who contemplate erecting a photographic gallery. We shall probably describe it more fully hereafter.

Mr. Walker, as we have said, does the photographic work of the Treasury Department, the greater part of which is the reproduction of architectural plans, drawings, and maps.

Our mutual and *numerous* Uncle takes it into his head to favor the good people of, say Ogdensburgh, New York, with a new custom-house and post-office building.

Being shrewd in his business transactions, his former *modus operandi* was, to have drawings made of the plan he desired the fortunate contractor to adopt in the erection of the building, and these drawings he would circulate among the several contractors and architects, who were always ready for such work, one after the other, to aid them in estimating their offers or bids. As only one could have the drawings at a time, and as a month at least was required by each one to make his estimate, it will be observed that much delay ensued, causing the good people of Ogdensburgh to grow impatient, and keeping all hands in a state of indecision.

Some more expeditious way must be adopted, and our ever ready, never intrusive art, was called in to see what it could do. Mr. Walker represented it, and without promising too much, took one of the drawings, retired, and in a few hours returned with enough copies of it to supply all the anxious contractors at once, and a negative in his possession on a sheet of paper from which he could make thousands more. How this was done we shall now proceed to describe, from instructions given us by Mr. Walker, who, by the way, does not claim to be the originator of the process (we cannot at the moment remember who was), but who has probably worked it more extensively than any one else for the last seven or eight years, and to whom we are indebted for modifications of considerable value.

THE DRAWING TO BE COPIED

Should be made upon thin paper, or, what is far better, *on good tracing linen*, care being taken to use perfectly black ink, or some other non-photographic color possessing sufficient body to effectually exclude all actinic rays. Make the lines *sharp* and *continuous*, that there may be no breaks.

TO MAKE THE NEGATIVE.

Take good plain Saxe paper (salted), and make it sensitive as for a portrait. Dry thoroughly, and fume ten to fifteen minutes, or until the paper prints rapidly and uniformly of a rich purple black color. Prepare the printing-frame with good plate glass, upon which lay the plain side of the drawing and superimpose the sensitive sheet, bringing the two in close contact by any of the usual means. In direct sunshine an exposure of one and a half to two minutes will generally be sufficient to produce a fully timed negative. Care must be used not to expose too long, as thereby the fainter lines would become clogged and feathery. Wash away the surplus silver, tone rather lightly, and fix like any other print; after which wash very freely and then hang to dry in such manner as to cockle as little as possible. This is the finished negative, quickly and cheaply made, and capable of reproducing an indefinite number of duplicates equal in size to the original drawing.

POSITIVES, WITH WHITE LINES, ETC.

Positives, with white lines on a dark ground, may be readily made by placing the sensitive paper upon the plain side of the drawing, and in other respects proceeding as for making negatives.

TO MAKE THE PRINT.

Place the plain side of the negative next the glass in the printing-frame, bring the sensitive sheet in conjunction with the opposite side, and expose as with a glass negative.

TO SALT THE PAPER.

Make a bath containing 2½ grains of muriate of ammonia and 2½ to 3 grains of gelatine or white glue to each ounce of water (use hot). Immerse the sheets two to three minutes and then hang in a warm room to dry.

TO MAKE THE PAPER SENSITIVE.

Brush lightly with a slightly acid ammonio-nitrate of silver solution 30 grains strong; dry thoroughly, and fume ten to fifteen minutes.

TONING, FIXING, AND WASHING.

To one gallon of water add fifteen grains of chloride of gold and fifteen grains of chloride of platinum, made neutral with carbonate of baryta; mix thoroughly, and set it in the sun or some warm place four or five days to ripen before using. This is the stock solution. Two or three hours previous to toning add one grain of neutral gold for each sheet of albumen paper, or about one-third of a grain for plain paper. Each one must tone to suit his own peculiar taste.

Mr. Walker deems the above toning bath a very economical one, as it may be used month after month.

The process is described as minutely as possible, as there are occasions when it will be found of great value. Before the days of albumen paper came, occasionally, when a negative was found broken, a plain paper print from it was used to multiply with, *i. e.*, as a negative.

Through the war Mr. Walker was kept constantly busy reproducing maps from the drawings sent him, for the officers in the field, and thus aided materially in imparting a knowledge of the country to as many as desired it, quickly and correctly.

He has favored us with one of his negatives, in size 24½ inches by 36½ inches, and a print therefrom, of the plan of a stairway, etc., of the new custom-house and post office building at Ogdensburgh, New York. No more beautiful work of its class can be conceived than this negative. It is of a uniform, purple slate color; the lines white, true, and unbroken, and not a blemish or a stain upon the whole sheet. Each line more correct than any lens of the present day could produce it.

No doubt many of our readers will try the process, and it would be a great source of pleasure and profit to them to see Mr. Walker manipulating on the gigantic scale which in his daily practice he does.

NOTES AND OBSERVATIONS IN PRACTICE.

BY PROF. JOHN TOWLER, M.D.

Dry Plates with Infusion of Nux Vomica.—I made a decoction of fifteen grains of nux vomica in one ounce of water; after filtration, I had five drachms of a very bitter liquid; to this I added twenty-four grains of loaf-sugar. The prepared plates were coated with this solution in the usual way, and then put away to dry.

After exposure, the plates are developed with an iron developer, which soon and easily brings out the picture of a grayish color. As regards sensitiveness, the nux-vomica plate stands high; but, there seems to be a drawback in this plate, which is common to the plates prepared with the salts of morphia; it is difficult to push the development after a given limit has been attained.

Observations on the Philosophy of Dry Plates.—I am quite satisfied, by experiments, that the retention of sensitiveness in a dry plate is not to be attributed to what may be denominated the bitter principle of plants, nor do I believe that this bitter principle increases the sensitive character of a simply-sensitized collodion film. I am more inclined to believe that the saccharine principle is more efficacious in preserving a sensitized plate; but syrups are deliquescent, and, on this account, they are liable to produce irregularity in the development. Now, if we can compound a syrup with some bitter or some astringent substance, so as to take away from the former its deliquescence, we invariably obtain a preserver. This is the case with tannin, with coffee, chestnuts, malt, tea, and a variety of barks. In all these cases, the collodion film is varnished, and, the more homogeneous and perfect the varnishing, the better the resulting negative. From this consideration of the matter, we are led to the conclusion, that, perhaps a solution of gum arabic, of plain albumen, or of gelatine, after all, is the real, the true preserver in dry plates, and that the philosophy of a dry plate consists simply *in preserving the film from the action of air.* If this be the rationale, the development must depend, in some measure, upon the facility or difficulty of permeating the preserving varnish by means of the developer. Hence, the necessity of always dissolving off this varnish before the development commences. The subject is worthy of study.

Developer.—The following developer was an experiment; it works well, and is so far curious, that it produces a deposition of metallic copper in the shades of the negative:

FORMULA.

Double Sulphate of Iron and Ammonia, ...	3 drachms.
Sulphate of Copper, . .	1 "
Water, ...	6 ounces.
Nitro-Gelatine, . .	40 minims.
Alcohol (if needed), .	40 "

The nitro-gelatine is prepared as follows:

Gelatine, ...	3 drachms.
Nitric Acid (Concentrated),	4 "
Water, ...	12 "

Dissolve, filter, and use when required.

If the negative requires any strengthening, add four or five drops of the bath solution to a drachm of the developer, shake the mixture well together, and continue the development. We have not yet tried this developer on iron plates (ferrotypes, &c.), but we think the effect will be agreeable. The coppery hue is obtained more particularly during intensification, and probably will not be manifest to any great amount on the ferrotype. Try it.

New Collodion Filter.—It is not necessary to remind our co-laborers in photography, that all our collodion must be filtered, or to insist upon the frequent repetition of this operation. They are aware of this necessity just as well as we are, and they are aware, too, that collodion filters are rather expensive articles, and not easily replaced in our small towns and villages, if an accident should supervene, and the only filter in the establishment should be broken. It is our pleasure to be able to help any brother out of a difficulty, and to show him how to make a collodion filter, equal to the best in the market, for about a quarter of a dollar. For this purpose we require two bottles with wide necks, such as we receive our protosulphate of iron in from the stockdealers, and capable of containing about twelve or sixteen ounces of water. The orifices may be about an inch or an inch and a quarter in diameter, and as nearly of the same diameter as possible, for the same cork has to fit into both of them. Select a good, soft velvet cork for this operation, and see that one-half fits tightly into one bottle, and the other half into the other. The next thing to be done, is to bore a hole right through the middle of the cork from end to end, and large enough to admit an ordinary little finger of a man, or the delicate, tapering index finger of a lady. Such a hole is bored in a few seconds, if you are provided with what is called a cork-borer; but, should this tool not be in your possession, you can make the aperture with the blade of a penknife first, and then enlarge it with a larger blade. The surface of the aperture can easily be rendered quite smooth by running a rod of iron, made red hot, right through it. Supposing this part of the operation has been done satisfactorily and successfully, now select a glass tube of about six inches in length, and equal in diameter to a fine black-lead pencil or an ordinary goosequill. Place the cork, broad end downwards, on the table in front of you; now insert the glass-tube into the hole in the cork, and let its end rest also on the table, and just in the middle of the hole; holding the tube in this position by means of the left hand, you next pack round the tube some clean cotton-wool with the blade of a knife held in the right hand; this operation must be performed in a workmanlike manner, taking care to keep the tube all the time in the middle of the hole in the cork, and not to press the cotton too compactly together, otherwise, the collodion will not filter through it. Introduce the collodion to be filtered into one of the two bottles, so as to fill it about three-quarters full, put the cork in the mouth of this bottle, with the glass-tube projecting down into the collodion; now turn the other bottle wrong-side up and bring its neck over the remaining half of the cork, and thus close it firmly and carefully. Finally, turn the combined bottles upside down, and let the collodion filter from the upper bottle into the one below. When the bottles are thus inverted, the collodion, naturally, must not be as high as the upper orifice of the glass-tube. You can make one sooner than the description could be written.

The Dark-Room.—I will tell you all about my own dark-room. In the first place, I prepare the color with which to cover the panes of glass in the window, a large window containing sixteen squares. About a pint of starch is first prepared, somewhat thinner than that used by the laundress. Into this stir an ounce of a saturated solution of subacetate of lead. In a separate vessel dissolve an ounce of bichromate of potassa in hot water, and add this solution gradually to the starch, stirring the mixture all the while over the fire, until you have a fine, bright, slightly orange, yellow-colored thin paste. Cover all the panes of glass with this yellow color, and repeat the operation about three times, always taking care to allow the first coating to dry before you apply the next. By taking the sashes out from the window, the thin yellow paste may be poured upon each pane like so much collodion; of course, the sash must be supported horizontally. In the latter case, a single coating will be sufficient. The light that passes through such a window will be yellow light; all the other colors of the spectrum will be stopped, absorbed in their passage through the colored glass. Where I develop the negative pictures, I have another window, but this is horizontal, and fixed in the table containing all the chemical preparations for developing, fixing, &c. So situated, you can hold the plate to be developed, above it, and thus watch the operation of development by transmitted light.

But you say: Will not the *white* walls, ceiling, and wood-work reflect white light upon your negative?

To obviate any interference of this nature, an interference that really exists—for the yellow light reflected from a bright white surface is less yellow, after such reflection, than before, just as chrome yellow is less yellow, after admixture with starch, than without this white substance—all the walls, ceiling, and wood-work are either washed over or painted with a yellow color. Chrome yellow, mixed with a little slacked lime, is just the color for the ceiling and walls, and a chrome-yellow oil color is suitable for the wood-work. During development, all white light must be excluded by closing the door and other apertures and crevices through which light can pass.

PRACTICAL NOTES ON PHOTOGRAPHIC SUBJECTS.

BY G. WHARTON SIMPSON, M.A.

Plain Paper Prints.—Whilst recently visiting the studio of my friend Mr. Valentine Blanchard, I noticed some plain paper prints of a richer and more vigorous character than is commonly obtained. On inquiring the process used, and remarking that it must be somewhat troublesome to prepare materials for an occasional plain paper print, as I knew that Mr. Blanchard's usual operations were confined to the production of prints on albumenized paper, I learned that when a plain paper print was required for any special purpose, it was obtained by a very simple expedient. Albumenized paper was floated on the silver bath with the plain side in contact with the solution, treating the albumenized surface as the wrong side. It seems that the albumen and salt penetrate and pass through the paper in sufficient degree, to form, when floated on the silver solution, a sensitive surface capable of yielding an excellent image, in no degree inferior to an ordinary plain paper print, delicate, vigorous, and of good tone. As it not unfrequently happens that an occasional plain paper print is required in establishments, where, as a rule, albumenized paper prints alone are produced, this little dodge may be found useful to many of your readers.

Influence of Modes of Manipulation on the Character of Negatives.—My attention has been recently called to a singular influence exercised by the mode of manipulation on the character of the negative, as regards intensity or softness. Of course every experienced photographer is familiar with the importance of skilful and neat manipulation. He knows that without skill in coating his plate with collodion he will get an uneven, lumpy film, which will result in an irregular background; he knows that imperfect manipulation in developing will give him stains and streaks; he knows that if in applying the developer he drives off the film all the free silver solution, he will have some difficulty in getting intensity; he knows, in short, that in a score of things, skill in manipulation is of vital importance in securing good pictures. But the statement I am about to make will at first sight appear to involve something more startling than any of the things just referred to. The claim, as brought under my attention by one of our most successful professional photographers, who has carefully worked out the conclusion by careful observation and extensive practice, is this: that in using precisely the same materials, in the same proportions, with the same exposure, a negative in which harmony and softness shall prevail, or one in which intensity or contrast shall prevail, may be produced at will by varying the mode of manipulating during development. This difference will depend upon the mode of holding the plate, and whether it is held still or kept in motion. Assuming that the chemicals, &c., are in good condition, and the exposure right, if the plate be held quite still after the developer is applied, a soft harmonious negative full of detail will be the result; whilst all the conditions remaining the same, if the plate be kept in constant motion after the developer is applied, a negative in which contrast and intensity rather than detail prevail will be invariably obtained.

My friend, in bringing this fact under my attention, as the result of hundreds of careful experiments with large plates, remarked that he had no theory or explanation to offer; but could absolutely vouch for the fact. Repeating his experiment I can also verify his statement. But a fact is always more interesting and valuable if its mode of operation is understood. This fact, it must be admitted, at first glance, seems singular enough, nothing in the means being apparently adequate to produce the end; but I think I can offer an explanation of the probable causes in operation which will account satisfactorily for the result. When an ordinary developer is applied to the exposed film, it will be observed that the high lights appear first, the half lights following, and so in regular succession, the least illuminated details being developed last. It will also be observed that in the process of development there is a natural tendency to aggregation in the deposit of silver: wherever light has most acted, there silver will be most readily precipitated, and hence, in an under-exposed picture, the lights acquire great density before imperfectly illuminated details are brought out at all. It must be borne in mind that whilst the haloid salts of silver in the film—the iodide and bromide—form the initial image, appreciable thickness and printing power are obtained from the free nitrate on the film. If these facts are borne in mind, then, it will be seen that after the developer is applied a double action is in progress, the image formed by light on the bromo-iodide of silver is in course of development, and the free nitrate of silver present is in course of precipitation on that image, giving it a certain degree of appreciable density, the rapidity of the precipitation of silver being in the ratio in which light has acted. If, then, the plate be kept still, the free nitrate of silver, being equally spread over the surface of the plate, is gradually precipitated, and the lesser lights, slowly but surely acquire sufficient density from the precipitation of the nitrate of silver immediately in contact to give them printing value; whilst the higher lights, only securing the precipitation upon them of as much free nitrate as is in contact with them, do not acquire excess of density. The result is a negative in which detail rather than intensity prevails. But if, on the other hand, the plate be kept moving, the tendency to aggregation is brought into active operation. The free nitrate solution being kept in motion over various parts of the plate, the lights, which are brought out first, having secured the precipitation upon themselves of the silver solution in immediate contact with them, find themselves in constant contact with a fresh supply, which in turn is precipitated upon the parts which, in virtue of the greater action of light, have the greater attraction for it. The lights thus go on rapidly aggregating the deposit of silver. In the meantime the minor lights, consisting of the detail in the shadows, suffer in two ways; first, they are robbed of the silver which should have helped to build them up; and in the next place, the high lights quickly acquiring sufficient density, the development is stopped, of necessity, before the less illuminated portions have had time for full development.

Taking this view of the case, it will be seen, I think, that it is perfectly natural that keeping the plate in motion should tend to give intensity to the lights, and keeping it still should tend to give full value to the less illuminated details. I have before pointed out, and have been confirmed by Mr. Carey Lea in the view, that the use of a weak developer tends to the production of contrast, and the use of a strong developer to harmony, the tendency in both cases being due to causes similar to those we have just explained: a weak developer, acting slowly, permits of the aggregation of deposit by the lights, whilst a strong developer, acting quickly, brings out the detail rapidly, and, at the same time, precipitates the full proportion of silver thereon. I think that the facts stated will be borne out by the observation of intelligent photographers, especially where large plates are used. A knowledge of facts of this kind will not only frequently be found useful, but will go far to explain the production of discrepant results with the same materials by different operators, and will tend to harmonize apparently contradictory experiences.

Intensifying Varnished Negatives.—Various methods have been at different times proposed of modifying the intensity of varnished negatives. It is not an uncommon circumstance to find that negatives which before varnishing present the right degree of printing intensity, become after varnishing so thin and transparent as to be almost worthless. Most negatives are modified in some degree by varnishing, becoming slightly more transparent; but the change is generally so slight and is generally in uniform degree, that whilst they print a little quicker than the unvarnished negative, the prints still possess sufficient brilliancy. But in some cases where the image is of an extremely porous character, the lights are degraded in undue ratio by the varnish, and the prints are flat and tame. Some years ago I found, in the course of experiments with some such negatives, that the printing vigor was best restored by the application of tincture of iodine. The varnished film was first moistened with alcohol so as to soften the varnish and tincture of iodine, six grains of iodine in an ounce of alcohol, was then applied, and, when the effect was produced, removed by rinsing again with alcohol, and either revarnishing or drying the film before a fire without further varnishing. Some care and judgment are necessary to stop the operation at the right point. The first effect of the tincture of iodine is to produce gradually a deep olive tint of a very non-actinic character, in place of the gray tint which generally belongs to the thin negative. As soon as this olive tint is secured the film should be washed with alcohol to stop the action. If it be suffered to go on the whole of the silver image is converted into a thin transparent layer of iodide of silver of a very pale yellow tint, which transmits light readily, and the negative becomes even less vigorous than at first. I have sometimes taken advantage of this fact to reduce the intensity of a hard negative, and by the continued action of tincture of iodine have changed the opaque black-looking deposit of a very dense negative into a more transparent deposit of a yellow tint, which has yielded soft harmonious prints.

I have been reminded of this method of dealing with varnished negatives, which I published several years ago, by Mr. Rejlander, who recently informed me that he had been applying it to a number of negatives which had been put aside as useless, having become too thin and transparent after varnishing. The subjects were good, and he was unwilling to lose the negatives. He had, therefore, tried the application of tincture of iodine with the most perfectly satisfactory results. He showed me prints taken before and after treatment. The former were dull, flat, and poor; the latter bright and vigorous. It is wise in trying this operation to experiment first on a waste negative or two, in order to become familiar with the changes which take place.

Uneven Drying of Albumenized Paper.—A peculiar defect is sometimes observed in the drying of albumenized paper after it leaves the silver bath. The solution, instead of draining off in an even wave, and drying uniformly, stands on portions of the sheet in drops, the spots where such drops have been becoming apparent in the print, by their gray tint, in the midst of the purple or brown acquired by the rest of the picture. Various remedies have been proposed: some have recommended the use of a weaker silver bath; others, the keeping of the paper in a somewhat damp place a few hours before sensitizing. The latter I have found a good remedy. A *certain* remedy consists in removing the superfluous solution by means of a sheet of clean bibulous paper, but there is a little risk of injuring the print by decreasing its vigor and brilliancy when this is done. A correspondent in India has recently sent me a remedy, which he has found to succeed when all things failed. He describes it as follows: "Beat up the white of an egg *well* in 4 ounces of distilled water; add to this 4 ounces of the ordinary silver printing solution; allow this to settle, and, rejecting the sediment, add a portion of this solution to the paper sensitizing bath. If the spots still continue to appear, add more of the solution till the evil is eradicated."

Photo-lithography.—My friend, Lieutenant Waterhouse, has just returned from a series of sojourns in the principal cities of Europe, made for the express purpose of visiting the various establishments in which photo-lithography and photo-engraving were carried on. He was commissioned to make the investigation by a government department, and went with letters of introduction which gave him ready access to many establishments. He has returned with a large number of examples of the various processes employed, which I have recently had an opportunity of examining, and of learning something of the method employed. I was scarcely prepared to learn, that in a very large number of establishments the use of bitumen of Judea is preferred to gelatine and a bichromate, both for photo-lithography and photo-engraving. Several fine specimens of photo-lithography in half-tone, which I saw, were produced, I was informed, from a stone prepared with bitumen. A grained stone was coated with a solution of bitumen in turpentine, exposed under a negative, washed off with turpentine, and the stone containing the image again slightly grained. The best photo-engravings in line, which I saw, were done at the Royal Printing Office, Berlin. The method, briefly described, was as follows: A copper plate was coated with a solution of bitumen, exposed under a negative, washed off, and etched with hydrochloric acid. From the relief image thus obtained, an intaglio image was produced in electrotype, and this formed the printing-plate. The results were exceedingly fine. The most perfect photo-lithographs in half-tone are, however, those of M. Tessie du Motay. The process must be regarded as belonging to lithography, although neither stone nor zinc, but a copper plate, is used, as a support for the gelatine film. The results are exceedingly beautiful. I am not aware whether the process is patented in the United States or not, but it is one undoubtedly worthy of the attention of Mr. Osborne or some of your photo-lithographers.

India-Rubber in Photography.—Some time ago an eminent English photographer recommended that negatives should be coated with a solution of India-rubber prior to varnishing, as a means of protecting them from the cracking of the film, and varnish which sometimes prove so disastrous, especially if damp have access to the negatives. I have recently had a communication from one of our most experienced professional photographers, who had adopted this plan with some negatives he especially valued. On recently examining them, he found that the films of the negatives so treated had, in all cases, cracked, whilst others, produced at the same time, and kept in the same place, but not treated with India-rubber, all remained good. In like manner, I have received many recent accounts of the complete failure of India-rubber as a mounting material. The prints seem eventually, in all cases, to curl off the board.

WET PLATES.

How to Place the Plates.—Although the nature of the subject will often decide imperatively whether the plate should be exposed, with its greatest length vertical or horizontal, yet still there are many subjects which at first sight may leave the photographer in doubt as to which will be the best position.

A useful canon in such cases, will be found to give the plate the direction of the most important subject. In a view of a lake, for example, the horizontal character of the lake will indicate that the plate had better have its greatest dimension horizontal, even if the objects to be embraced are such that they would be equally well included upon a vertical plate. If the principal object be a lofty tree, the plate had better be vertical, not so much because the height of the tree demands it, as because there will thus be a harmony obtained which would otherwise be wanting. The tree will be rendered more imposing by this treatment, which has some analogy with the device constantly employed by painters and artists, where a tree is represented upon a height, of putting a standing figure in the foreground directly under it. The additional altitude given to a tree in this way is very remarkable.

The contrivance just mentioned, may be introduced into photographic representation, and is especially valuable in pictures taken with their greatest length horizontal. For, in such pictures, trees do not so easily take a majestic appearance as in vertical pictures, and the aid is valuable.

Shape of Plates.—Some of the photographic sizes are badly proportioned, and this is especially felt when the plate is turned vertically. The 6½ x 8½ is too narrow for its length; 7 x 8½ would be much better. The 8 x 10 is admirably proportioned, and gives a beautifully shaped picture, turned in either direction. The "whole-plate" size is so very largely used, that it is to be regretted it should have the conspicuous fault just spoken of.

THE CAUSE OF ALBUMEN PAPER TURNING, AND A REMEDY.

In winter we try to keep warm; in summer to keep as cool as we can, and that is where the trouble lies.

The air holds a certain amount of moisture, the warmer the more it holds, in an invisible state. Where the air has a large amount at 60°, if it was raised to 80° it would become very dry, and anything that was moist hung in it would dry fast and completely. If the air is heated to 80°, and has a large quantity of water suspended, if it is cooled to 60° it becomes saturated, and any object will dry slow and never become completely dry. Now, in summer, the air outside is warm, and holds a certain amount of water. When that air is brought into a cool room it becomes so near to saturation that the paper drys slowly and very imperfectly, leaving water enough to produce a change.

Then there is usually a good deal of water in the rooms, which makes it so much worse. In cold weather the outside air is cool, and holds but little water in suspension. When that comes into a warm room it becomes dry, or in a condition to absorb moisture, so that the paper dries quickly and perfectly, thus preventing any change.

What is wanted is to have the air in as good a condition to dry in warm as in cool weather, and there is but one way to do it, and that is to use artificial heat in warm weather, and completely dry the paper. It is somewhat inconvenient to have a fire in summer, but a lamp can be used to dry the paper, or a small stove with a light fire, holding the paper as near as it can be, and not burn it.

I tried this the later part of the past summer, and I found my paper kept a great deal better. Of course it won't keep as long as in cold weather, but it gets rid of the worst part of the trouble. Try it, if you have not already done so.

A. F. Clough.

Another Remedy for the Discoloration of Paper.—Take—

Silver, ...	1 ounce.
Water, ...	7 ounces.

When dissolved, add 1 ounce of alcohol and 2 drachms of conc. liq. ammonia. Shake well and let stand a few minutes to saturate. Then add pure nitric acid until the brown precipitate is fully redissolved. It will be very nearly neutral, of a slightly *milky* appearance, but will filter out clear and remain clear. When below working strength or bulk, make a new bath in the same way, using sufficient excess of silver to make up for lack of strength in the old one, and after clearing up with acid, add the two together and filter out for use. Float the paper from thirty to sixty seconds according to temperature, and do not fume at all. The paper will dry with great brilliancy, print rapidly, and will never be *mealy* unless there be radical defects in the toning or fixing bath. I have found no remedy for discoloring of the paper equal to the above.

J. L. Knight.

Topeka, Kansas.

COFFEE PROCESS.

I HAVE found occasion, in my practice, to somewhat modify my work in the preparation of the plates. I find that a substratum of albumen, one of egg to ten of water, and even more dilute, to be better than the gelatine. Wash the glass plate in pure water, and, while still wet, flow with the dilute albumen and set up to dry, which it does very rapidly. Next, after the plate is coated, sensitized, and washed, to flow with a weak solution of bromide of ammonium, say water, one ounce; bromide of ammonium, four grains; after flowing, wash and immerse in the coffee solution. I find an advantage in preparing the coffee solution in the following manner: pour cold water on the ground browned coffee, and let stand for several hours, and then filter the decoction through the grounds several times, and then dissolve half the quantity of sugar heretofore recommended, dry quick and with considerable heat. No matter what may be said to the contrary, these plates thus prepared will keep, and I find them, at the end of six weeks, sufficiently sensitive to take vessels in motion. I find the method of alkaline development for dry plates, by Peter Mawdsley, described in the *Photographic News Almanac* of 1868, page 61, to be very excellent.

J. J. BARDWELL.

THE PHOTOGRAPHER ON STILTS.

ONE of the greatest obstacles to the progress of our beautiful art, is the photographer on stilts. He is emphatically *high* in the art—he thinks. He is an extremist. Nothing is acid unless it gives red litmus paper the blues instanter. No negative is intense unless it is black. No print done until it is bronzed; nothing toned until it is gray, and never fixed until it has the jaundice. An extra twist is given to every neck. Extraordinary accessories placed in the most ridiculous places; the worst of lights constructed directly contrary to the usual rules. This is the style of our photographer on stilts. He is happy when opposing any one. He never takes a Journal. (He borrows it.) "No use for one. Knows it all. Has practised the art for twenty years. Made daguerreotypes. Patented a process once, and then gave it away (because every one knew of it before him)." Thinks his work is "good enough." "Took the premium at the Windyville Agricultural fair last year. He took a Journal one year. It never did him no good, and he never cut the pages apart. He wrote to the editor and told him he discontinued taking his Journal because he didn't try, and indorse, everything he published. He also advised him how a journal should be conducted to make it a success, but it did no good. He favored the Extension of the Bromide Patent, because it would prevent 'cheap Jacks' from getting into the business. He gets two dollars a dozen, he does, for his cartes, and his work is good enough for any one. Hard to beat, too. Has heard of Salomon and all them fancy photographers, but his work pleases his customers—when he gets any—and he don't see why he need run after Journals, read books, and try processes, when he did all that thing twenty years ago. If photographers only knew the knowledge he possessed, they would send him their prints by the thousand, to mark his criticisms on the back.* He would improve the photography of the country." As it is, the only work in the world he sees, besides his own, is that of his neighbor, of whom he borrows the *Philadelphia Photographer* every month, and writes kindly letters of advice to the parties whose pictures appear therein, and meet his eyes. This is the photographer on stilts. He gets up in a garret, and plods over some fantastic idea, old to the craft, and is continually applying for patents, each time to be rejected. He is a process-discoverer, he is. Photography owes him a living, and some day it will be known. He is a ready fault-finder. He is an east wind. He blows—is always in a gale. Nobody pleases him. He is not a progressive being, though he is elevated enough to make rapid strides. He stays where he was ten years ago. Each decade finds him that much older and none the wiser. He is too old to be taught. He has marked out a way, and he continues to follow it right straight along, zealously and senselessly. All these fancy processes are good enough for those who like them. Those who do, will be glad enough to come back to the old way some day.

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* How joyous that would be, and not to send any stamps for return postage!

Now, let us go into his rooms while he is gone out an hour or so to find fault with his neighbor. We enter the dark-closet, where we can read the character of the occupant quicker than anywhere else about the place. The stench that meets us is suffocating. Old, dusty yellow rags hang at the windows, white light creeping in at the sides; shelves laden with antediluvian glassware; a closet with iodides, bromides, chlorides, hypo, and iron, crammed in promiscuously; the iron crystals and hypo splashings grind under your feet as you walk around, or you splash into a puddle of stale water, from a leaky tank. Old scraps of paper go flying over the floor when the door is opened, and there is a pretty mess there generally. We need not describe the rest of his place. His fuming-box, to save space, is under his silvering-dish. He fixes his prints and washes them in the same vessel, never washing it between the operations. Two or three customers call while he is out, and go away disappointed, but the gainers, if they only knew it.

He comes in while we are rummaging about.

"Oh! photographers from the city? Glad to see you. Sit down. Been at the business long? Excuse things hereabouts. Have just been out awhile, and they are somewhat out of order. Don't usually have them so. I've been in the business twenty years, and know how things *ought* to be. Think my work *compares* with any I have seen from the city. Our folks like it. I don't fancy the work they make nowadays. People won't have it. I have growed up with the town here. Know just what they want. Nomancanteachmeanything aboutthisart. I know it all, have taught the business to a good many, and it is hard to learn me anything about it, I can tell you. I intensify when I please, and I don't ditto; so nobody can teach me how to photograph. Twenty years' experience ought to teach."

We become suddenly humble, and retire. The man is too high for us. So high he cannot see the filth about his feet and at his own door. He thinks he is a reformer. A missionary sent from the Kingdom of old Sol, to teach others how to make pictures. He buried his talent of ten years ago, and will not improve it. What's the use?

Now, Mr. Stilts-walker, a word of advice from one far beneath you. If you wish to benefit yourself, and others, come down from your elevation, and earnestly acquaint yourself with the wondrous doings and capabilities of your art. Find out what is really needed to be done, and then go to work at it. There is a wide field for you, but first make yourself acquainted with the ground before you attempt to rule and regulate the whole of the forces. There are other heads as wise as yours. Come down. Clear away the mud and be clean. Stilts are awkward things. Journals, properly conducted, are good things. Change awhile. It is cowardly to climb up high and then throw mud at your neighbors. A photographic stilts-walker is generally a botch, a delusion, and a snare. Don't try to imitate him. You may tumble down, and no one will pity you or help you up.

MASON'S METHOD OF COPYING.*

All photographers who have occasion to copy daguerreotypes, ambrotypes, photographs, paintings, engravings, or other objects occupying a *flat* field, are well aware that several conditions are requisite for first-class reproduction by the camera, which do not exist, or may, with apparent impunity, be disregarded in ordinary portrait or landscape work.

And yet we look through our best photographic establishments, and wade through the voluminous photographic publications of our own and foreign countries, without finding any systematic, simple, and efficient method by which uniformly good results may be obtained through inexpensive means, by those possessing but ordinary capacity.

The wealthy amateur or organized company of capitalists may well afford nicely adjusted and exquisitely working instruments, which are *far* beyond the reach, or even the *hope*, of many, in whose catalogue of expenses the necessary and often perplexing items of *bread and butter* MUST be first and greatest.

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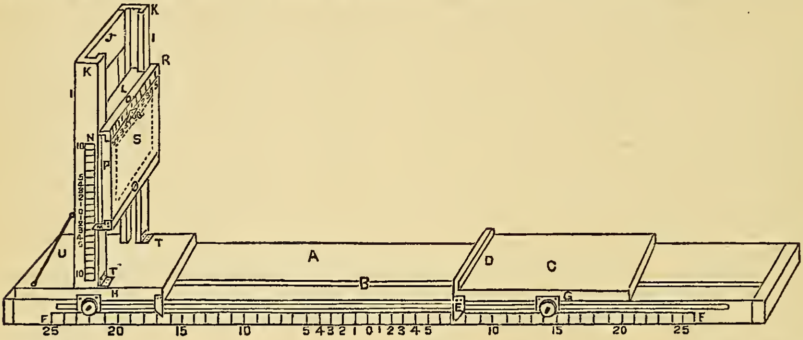
* Read before the Photographic Section of the American Institute, December, 1868.

During the last few months, I have received several letters of inquiry as to the best method of copying pictures and other objects occupying a flat field. Several of these letters have, thus far, remained unanswered, save by a simple acknowledgment of their receipt, and a promise of further attention at some future time. And I do not think that they can be better answered than *through* the Photographic Section of the Institute, and *by* a descriptive sketch of the device which I have had in use several years on ordinary work, and, in fact, upon several occasions where adjustments to the $\frac{1}{100}$th of an inch were required—a nicety far beyond which the apparatus is quite efficient, when properly constructed, as will be readily understood from the sketch and following description:



(A) is a plain, smooth board of any desired length and breadth, having a cleat at each end to prevent warp or splitting, and having a groove (B) ploughed in its upper surface, along which the tongue-guide of the sliding-board or camera-truck (C) can easily move, and thus be kept parallel with the base (A). Upon this truck (C), which rests upon four small wheels, one under each corner (but not shown in the sketch), the camera is placed, with its front resting against the ledge (D), in which position it may be clasped by a set-screw, though I do not find it necessary to do so. The board or truck (C) may then be made to travel with its load — the camera — forward or back, to any desired point, and its position will be indicated by the index (E) moving over the scale (F), which is divided to tenths and hundredths of an inch, or a vernier may be substituted for the index when greater nicety is required. Any desired position of (C) may be retained by the set-screw (G), the head of which runs in a rebated groove in the edge of the base-board (A).

(H), the truck for the plan-board, is provided with guide, index, and set-screw, as in the case of (C).

Upon *this* truck are erected two uprights or posts (I) joined at the top, and made firm by the cross-bar (J). These posts, as shown at (K), are grooved, in which the tongues of the strong frame (L) have a free, perpendicular motion, and is held at any desired point, indicated by the index (M), on the scale (N), by a set-screw on the back side, and not shown in the sketch.

Upon the frame (L) are fastened two guides (O), in which the plan-board (P) has a free horizontal motion, its position being indicated by the index (Q) upon the scale (R).

The centre (S) of the plan-board, as shown by the dotted line, may be removed at pleasure, by turning two small buttons, so arranged as to be flush with the back, and offering no obstacle to the proper motions.

When the portion (S) is removed, a negative may be inserted in its place, and the apparatus is excellently adapted to the production of glass positives, and is so used by me in preference to a far more expensive apparatus, which I constructed several years ago expressly for such work. For convenience of packing, laying away on the shelf, or hanging on a nail in the operating room, the uprights may be hinged as shown at (T), allowing the plan-board, when not in use, to fall forward, and lay flat upon the base (A), and, when in use, may be held in position by hook-braces, as shown at (U). The one which I use in my own practice is so constructed.

With this simple apparatus of small cost, many perplexities may be avoided, and much time saved.

The operator is *always sure* that the plane of his original on the plan-board is at a true right angle with the axis of his copying lens. The vertical or lateral position of the original may be easily changed without interfering with the focus or removal from the plan-board.

Whenever a copy of any especial size is made, either equal, reduced, or enlarged, and the positions of the several parts of the plan-board and camera noted, no further focussing upon the ground-glass, is *ever* needed for reproductions upon *that* scale and by *that lens;* of course, it is necessary to observe the position occupied by the ground-glass, for any given scale of enlargement or reduction. A paper scale may be pasted on the base or bottom frame of the camera, and a simple index attached to the sliding portion of the camera body. Every one will understand the necessity of having the surface of all subsequent originals occupy the same relative position as the ones used in establishing the various scales. If the plates or paper of any original is thicker or thinner, the truck of the plan-board must be moved back or forward, as the case may be, until the proper compensation is indicated by the index on scale (F).

For example, the operator has occasion to make a copy upon a scale of four times the original, which, for convenience, he places upon, as nearly as may be, the centre of his plan-board, which centre is shown by the intersection of two right-angle lines drawn through the extreme length and breadth of the plan-board, as often is done on the ground-glass of the camera. Having placed his camera on the truck (C), he proceeds to adjust the focus and size for his copy upon the ground-glass, by the necessary movements of the several parts. After the negative is produced, and found to be of the required size and satisfactory definition, he notes the position of the indexes on the several scales, and ever afterward he is *sure* of correct focus and size (for that scale), by referring to his note-book or sheet of scales, and fulfilling the conditions there recorded.

A list of scales for reductions, and another for enlargements, may thus be made with good subjects and light, which, by frequent use, are retained in the memory, so that even reference to the recorded scales soon becomes unnecessary, and the ground-glass of the camera-box has but little use, except to exclude the dust from the interior. In dull weather the eyes of the operator are relieved from the perplexing and sometimes vain search for the *best* focus, and much delicate work may be intrusted to an assistant, who would most likely produce unsatisfactory results by the ordinary methods.

To those unacquainted with systematic work, the use of such apparatus may, at first sight, appear troublesome, but, it is really so simple, that any one may, in practice, learn its use in much less time than is required to read this description. In fact, the whole thing can be comprehended at a glance.

Mr. Anthony has kindly offered to furnish the apparatus upon the order of any who may wish to test its utility in practice, or it may be had through any dealer.

NEW YORK CORRESPONDENCE.

Meetings of photographic societies are not always interesting nor important; much, I have often observed, depending upon a proper start; without which they lack impetus; lacking which, they lack interest. Members were in attendance; each, however, waiting for the other, himself a listener. After several appeals from the chairman, Professor Joy, for reports from various committees, all reporting progress, and for papers pertaining to photography, Mr. Mason, Recording Secretary, read a paper on his method of copying. (See page 13.)

I beg to say, that there are but few who understand the foregoing subject better than Mr. Mason, he having had, with the Am. Photo. Lithographic Company, under Mr. Osborne, valuable experience in this special matter of copying.

I would add, the apparatus *is not patented*, and that there is no danger of "Tim" Hubbard ever obtaining control of it.

Mr. Anthony exhibited some fine stereo prints of exceedingly warm, rich tones, very excellent, particularly brilliant and clear in the whites, and spoke substantially as follows:

"For some time past, it has been my habit to pass all our prints through a water acidulated with acetic acid, after their first washing and before toning, which gave me results better than heretofore had by simply washing in water.

"I suggested this method of treatment to Mr. Newton, who never does anything by halves, and he at once tried a stronger dose of the acid (30 drops of acetic, No. 8, to a quart of water), and placed the prints therein from the pressure frames, allowing them to remain some two or three hours, until he was ready to tone, and then passing through one wash of pure water merely to remove the excess of acid water. I have tested, to my entire satisfaction, his modification of my suggestion, and strongly recommend it, as requiring less gold, less over-printing, and less time in the toning bath."

Professor Joy introduced us to a rare treat, by exhibiting his album of photographs of celebrated scientific men; not only of our time, but as well those who have written upon the world's history their names in characters as undying as the sciences and studies, to which they devoted lives of patient toil, and intellects rich in original thought.

Mr. Anthony described the new "Rapid Rectilinear Lens," made by Dallmeyer, especially useful to the "dry" workers, as being second only to the portrait combination for rapidity of action.

The writer can fully indorse his praise of this new lens, being able, from actual use of an 8 x 10, to assert that it is nearly as quick as the portrait lens, will cover a 9 x 11 plate, sharp to the corners, with very large diaphragm, consequently working deep and thoroughly into shadows, which, with tubes that light but feebly, is not the case, and copying most excellently well.

By comparison to the lens (Fitz) I have long used, and by no means a slow worker, the exposure of tannin plates will be reduced seventy-five per cent.

Various decoctions have been ordered, from time to time, by learned and skilful men, with which to dose the far too slow dry plate, either in its preparation or development, but none have hurried it onward so rapidly as Dallmeyer.

Greeting: I wish yourself, good Mr. Editor, and your readers, a happy, prosperous New Year; may the year 1869 prove as great in benefits as has 1868 in photographic discouragements.

C. W. H.

PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

The regular monthly meeting was held Wednesday evening, December 2d, 1868—Dr. Alexander Wilcocks in the chair.

The minutes of the last meeting were read and approved.

The resignations of Mr. John Tennent and Mr. George Brinton Phillips were read and accepted.

Mr. Tilghman stated that he had exposed a sensitive wet collodion plate under a negative, to the direct light of the moon, for forty minutes. After being developed with iron, the plate showed decided action of light, although the positive was very weak. The plate was washed before exposure, and placed, while wet, directly against the negative, the film of water preserving both plates from damage.

Mr. Tilghman thought, that from the success of this experiment, about two hours would be required to produce a full exposure. The negative was of ordinary strength.

Mr. Browne exhibited a number of pictures illustrating the story of "The old woman who lived in a shoe," the shoe containing fifteen children, all quiet.

On motion adjourned.

John C. Browne,
Recording Secretary.

NORTHERN OHIO PHOTOGRAPHIC SOCIETY, CLEVELAND.

The Northern Ohio Photographic Society met on Thursday evening, December 10th, — J. F. Ryder, Esq., President, in the chair.

Mr. Ryder reported the proceedings of the National Convention.

The members of the Society expressed much satisfaction with the result, and all regretted their inability to have been present.

The subject for discussion was the "Negative Bath."

The permanganate of potash had been tried, by most of the members, for baths when not in good working order, and had proved to be the right thing in the right place. It was suggested by one or two of the members, however, that it could be used too much and too often—adding just enough to leave a slight red tinge and filter immediately, was better than using enough to create much sediment, so that the bath would have to stand some hours to settle before filtering.

The subject of discussion for the next meeting, is to be: "Nitrate of Silver, in its Relation to Photography."

Adjourned to meet on the evening of January 7th, 1869.

E. Decker,
Secretary.

Cleveland, Ohio, Dec. 12th, 1868.

THE NATIONAL PHOTOGRAPHIC CONVENTION,

Held in Philadelphia, Dec. 1 and 2, 1868.

In obedience to the call issued with our November and December issues, the photographers from various sections of our country assembled in Philadelphia. As was expected at this season of the year, the attendance was not large. The holiday season was near at hand, and many who expected certainly to attend the Convention were detained.

There were a number of the leading men of the profession here, however, and a *National Photographic Association* was successfully organized, and the furtherance of its interests earnestly undertaken.

A report of the whole proceedings has been sent to each of our subscribers, so that we need not take space here to give more than a synopsis of what was done. The meeting was a most gratifying and pleasurable one, and we regret that the choice of time prevented so many, earnest in the matter, from being present. However, they can all do some good at home, and, at our first annual meeting in Boston, in June, we expect to see a most enthusiastic turn out.

The objects of the Association, we may briefly state, quoting from the Constitution adopted, are, viz.:

"1st. To improve the science and art of photography by diffusing scientific knowledge among its members, fostering photographic literature, stimulating discovery and invention, and encouraging home production and manufacture of the many articles required for photographic use.

"2d. To discourage and oppose any unjust imposition which tends to hamper the progress of the art.

"3d. To establish the relations between members of the profession and the people at large upon just and business principles, which shall promote the public welfare and be of mutual advantage.

"4th. To establish a bureau of information for the mutual benefit of those desiring employment and those desiring employés, employers engaging assistants to give preference to members of this Association in good standing, provided the applicant be a person of proper habits, character, and equally skilled with an applicant not a member.

"5th. To regulate the system of apprenticeship and employment, so as to prevent, as far as practicable, the evils arising from deficient training.

"6th. To inaugurate exhibitions of photographic productions, on a scale commensurate with the progress of the art."

Certainly, every intelligent photographer in the country will indorse such principles, and join heart and hand in advocating them. Every such one will also want to know *how to become a member.* This we will endeavor to make plain. In the first place, write to any member of the Executive Committee, inclosing two dollars (or, if you are an employé, one dollar), and express your desire to become a member. He will return you a receipt for your money, and inclose you a copy of the Constitution, in which you will find at the back part a blank like the following:

Approving of the objects of the *National Photographic Association,* I am desirous of joining it in membership; and, having read its Constitution, I hereby signify my approval of it, and subscribe to it.

Name, ————

Address, ————

Date, ————

This you will sign, adding your full address and the date, and return to him. You will then be a member in full standing of the *National Photographic Association*, and entitled to all the privileges of the same.

It will be observed by those who have read the report of the proceedings, that those who become members before June, will have only the initiation fee, and no dues to pay until then. This is done to stimulate the immediate swelling of the ranks, and, no doubt, the most of our readers will avail themselves of the opportunity.

Every operator and every principal in the country should not only become a member, but try to secure others. It should not be understood that the objects of the Association now presented will be the only ones. As it grows, new spheres of usefulness will be opened, and, eventually, it will become one of the most useful and beneficial associations of the country. Much good must come of it, and much benefit be derived from it by every member. The *Bureau of Information* is one of the best features of it, after the elevation of the art in the public mind.

In good time we shall have, no doubt, presentation prints, a Charity Section, a National Library and Model Studio, and a Central Gallery for the exhibition of examples and curiosities of the art. The management is in excellent hands, and includes some of the very first men in the profession—enough earnestness, too, to carry forward the good work successfully. It is even now, therefore, to the advantage of every one to join it at once.

Will *you* not, then, do so, and, after you have read the report of the proceedings sent you, lend it to your neighbor, and induce him to join with you? Make yourself a recruiting sergeant, and gather in all you can. We look upon the readers of our Journal as the *live* men of the profession, and on them depends the building up of the new organization. Work earnestly for it, and be assured you will be well repaid. The fees are very small, and, the greater the number, the more beneficial it will be to all. Swell the ranks, and begin now to prepare, if possible, to attend the first annual meeting in Boston the first Tuesday in June.

And now, another thing: it is proposed to hold an Exhibition at that time also. Endeavor to be represented there by examples of the very best work you can possibly make. Let the Exhibition be a success, and do your part to make it so. Efforts will be made to secure specimens from foreign countries, also, and a fine display is expected, not only of photographs, but of chemicals, apparatus, and everything pertaining to the art.

We trust our contemporaries abroad will take an interest in our Association, aid us all they can in procuring specimens for the Exhibition, and in making any suggestions they may think will further its objects. Five months is not a very long time, and June will soon be here. With it let us have some of the brightest days in the history of American Photography.

The late Convention was a most harmonious and pleasant one. The vote was unanimous for the organization of a National Association, and, although only a few, comparatively, were there, the lack of numbers was compensated for by the prevailing earnestness. In the evening after the proceedings had ended, the members of the Convention were delightfully entertained and instructed by Professor Henry Morton, Ph.D., in one of his inimitable lectures on

"Light." His services were secured by the photographers of Philadelphia for the occasion, and the proceeds from the sale of tickets paid almost the whole of the expenses of the Convention.

Dr. J. F. Boynton was present, and, after becoming a member, offered to deliver one of his admirable lectures to the Association in Boston.

Adding a list of the officers elected, we now close with the earnest desire that every photographer in the United States will become a member of the *National Photographic Association.*

President: Abram Bogardus, New York.

Vice-Presidents: John A. Whipple, Boston; Samuel Holmes, New York; W. L. Germon, Philadelphia; Henry Pollock, Baltimore; D. H. Anderson, Richmond, Va.; S. T. Blessing, New Orleans; Robert Benecke, St. Louis; A. Hesler, Chicago; E. Decker, Cleveland; J. E. Whitney, St. Paul; J. J. Bardwell, Detroit, Mich.; E. T. Whitney, Norwalk, Conn.; G. S. Cook, Charleston, S. C.; Benjamin Carr, Concord, N. H.; M. Nichols, San Francisco; L. N. Cheeseman, Trenton, N. J.; C. R. Savage, Salt Lake City; F. W. Hardy, Bangor, Maine; E. Garrett, Wilmington, Del.; N. S. Howe, Brattleboro, Vt.

Permanent Secretary: Edward L. Wilson, Philadelphia.

Treasurer: H. T. Anthony, New York.

Executive Committee: David Bendann, Baltimore; J. F. Ryder, Cleveland; J. W. Black, Boston; J. M. Fox, Rochester; J. Cremer, Philadelphia; Edward L. Wilson, Philadelphia.

Committee on Progress of Photography: J. C. Browne, Philadelphia; Charles Waldack, Cincinnati, Ohio; Alexander Gardner, Washington, D. C.; William J. Kuhns, Brooklyn; C. T. Miller, Providence; Colonel J. M. Letts, Bordentown, N. J.; Dr. J. F. Boynton, Syracuse; Charles Wager Hull, New York; W. Langenheim, Philadelphia; H. J. Newton, New York.

Local Secretary: G. H. Loomis, Boston.

OUR AIM.

"The National Photographic Convention, at whose recent session in this city it was resolved to form a permanent 'Association,' adopted for the same a compact series of rules. We trust that they may be found efficient in carrying out the objects of the organization. There is a statement of an aim, however, which is exceedingly unfortunate. It runs thus: 'Its aim shall be to unite the *educated* and reputable photographers of this country in the following objects,' &c. Photographic science is yet in its infancy. It has pushed along with a wonderful energy during the few years of its existence. Its scope at present is large and its importance generally recognized. There are peculiarities about the trade which render its acquisition possible by many who certainly are excluded by a part of the above declaration. They may be reputable and energetic, but may not be *educated.* Upon such the statement will fall with crushing effect. It may stint good taste, disqualify talent, and sacrifice ambition. Many a young man has embarked his time and money in the profession, who, if taken by the hand, would at no distant day ornament it, but who is exorcised by the cruel mandate, because, forsooth, he may not be sufficiently *educated.* The Association should have invited such, rather than repelled them. If it is determined upon reforms, if it is going to raise the standard of the profession and promote the science, it should take into its school the weak ones and learn them. It cannot raise up genius and cultivate taste by horsewhipping them."—*Phila. Press.*

The above we take as coming from Dr. R. Shelton Mackenzie, a warm friend and lover of our art, a fact evinced by his article. While we thank him for his jealous care for the most humble in the craft, we would explain that the word "educated" is not understood by us in the common acceptation of the term.

In a photographic sense we consider a photographer "educated" who strives to elevate himself and his profession by keeping up the quality of his productions and demanding a reasonable price for the same, as opposed to the one who does the contrary.

It is the desire and intention of the Association to take by the hand, help and encourage the weakest and humblest who may aspire to better themselves. It is for that the organization has been formed, and for that end it will work, hoping, eventually, to educate the uneducated, as we understand it. Far be it from us to discourage any one aspiring to improve and progress.

DRY PLATES AS SENSITIVE AS WET.

BY M. CAREY LEA.

I HAVE succeeded in finding a method of preparing dry plates equally sensitive with those made by the wet process, and requiring literally an exposure no longer than that of wet plates, made with a bath in good condition. And this not as an exceptional or occasional result, but regular, practical, and satisfactory.

Early in September last, whilst working with the collodio-bromide and lead bath process, I felt desirous of obtaining such a modification as would give very rapid results. Experiments made with gum as a preservative (or rather sensitizer) for collodio-bromide plates, showed a great sensibility, but, coupled with serious drawbacks. The images were thin and devoid of contrast, often stained, and the film wrinkled up in a very remarkable manner. These appeared so serious, that I put this method aside, and made a very wide set of experiments with all the substances that seemed at all likely to give good results. Nothing, however, showed a degree of sensitiveness comparable with gum, and I, therefore, returned to that process.

I had just discovered that a *large augmentation of the proportion of sugar*, which I more than doubled, obviated the difficulties above spoken of, in a very surprising and satisfactory way, when my supply of cotton gave out, and I, also, lost my collodion already made. Mr. Cooper's factory having been burned, I could get no more Helion cotton, which I had been using, and thus my experiments were completely interrupted until quite recently, when I have succeeded in obtaining still better cotton than the Helion.

In the meantime, I had written to my friend, M. Constant Delessert, of Lausanne, urging him to try the collodio-bromide process, with details such as induced him to take it up; and he, also, experimenting with gum, obtained good results, some information of which has been published. I believe so far, however, his success has not been uniform.

Since a fresh supply of good cotton has enabled me to resume the work, I find that my previous conviction of the rapidity and excellence of the process is fully justified. So far, I have not had time to work out the details as fully as I expect to. I shall, therefore, give the general method here, and hope, before long, to give further useful information. I can, however, already give such directions as will enable any one to work this method.

The plate is to be coated with sensitized collodion, precisely as directed by me in previous papers. It is then, as soon as set, and without washing, to be plunged into the gum-bath, in which it rests five or ten minutes with occasional agitation. The criterion for removing, is that the bath must flow smoothly over the plate without oily lines. It is then taken out and dried.

The gum bath is made as follows:

Water, ...	30 ounces.
Clean Gum Arabic, . .	600 grains.
Loaf Sugar, . . .	360 "
Carbolic Acid, . .	6 "

To be filtered. The object of the carbolic acid is principally to make the solution keep better. The proportion of sugar is raised from five grains to the ounce, as indicated by Mr. Gordon in his bath for iodo-bromide dry plates, up to twelve grains. And this change makes, as I have ascertained, the difference between success and failure.

The extreme simplicity of this process is as remarkable as its rapidity: it is simply to collodionize a plate, to plunge it into a bath, and to dry it. One or two points will need attention on the part of the operator.

The *pyroxyline* must be exactly right. In this respect the gum process is more exacting than that with the lead bath, which I described some time back. It is not that proper cotton is very difficult to make, but simply that the sort needed is very different from that used for wet negatives, and, there being no demand for such, it is not made. For the gum process, the Helion No. 1 cotton does not answer well. That which I have found right, was a sort made in the course of some former experiments by Mr. Peter Parys of this city. Believing that the collodio-bromide process is destined to make its way, and acquire a great importance, I trust that Mr. Parys will be able to supply this cotton regularly and of uniform quality, a matter on which I shall endeavor to speak more decisively in the next number of this journal.

Another point necessary to be adverted to, is this: Gum renders the film peculiarly capable of *osmotic action*. Liquids force their way through it, and, consequently, a portion of the developer gets under, not at the edges, but by working itself through the film. The film loosens itself all over the plate, but is firmly held down by the edging, thus, the liquid inside moves freely under the film, and, if left there, collects at the lower end of the plate as set up to dry, and makes a brown stain. All that is needed, is to stick the point of a pin through the film at the lower corner, and let it out; this is best done before the washing off of the hyposulphite. Or, in edging the plate with India-rubber, instead of carrying the brush round the corners, leave a little opening at each corner, through which the plate may drain itself.

The development is, of course, by the alkaline developer. This, I prefer to use as a bath. The dose of bromide of potassium should be liberal. The negative may be put in without any previous washing, and, at first, the liquid should be kept in motion for a minute or two by alternately raising each end of the plate—this insures evenness of action and removes a slight cloudiness, which, at first, shows itself in the liquid.

A CHAT ABOUT OURSELVES.

As other folks seem privileged to commend us everywhere, and to overwhelm us with good words, why should we not begin the year with a little chat with our readers about ourselves? We,—our magazine and us,—to you, are now "five, going on six" years old. Since our birth, our circulation has steadily and rapidly increased, and is *now continuing to do so* more than any of the several photographic journals born in this great country.

We have worked hard to bring the *Philadelphia Photographer* to the high position it now holds, and we mean to work harder to get it up higher. Our "working tools" are those usual in every well-regulated editorial sanctum, impelled by brains, greenbacks, and enterprise. Our Journal is a pecuniary success, for it pays every one who takes it, and it *will* pay *us*, if every photographer will take it. Won't you co-operate with the good friends who have always made effort to put it in the hands of those who do not take it?

If we go back, our art goes back, and you with it. We are yours. Help us. We will stand guard for you and herald the approach of the enemy. If he steals upon you suddenly, we will fight it out on any line you may choose for us, if it be your pleasure, as we have done before.

Our journal has been chosen as the organ of your "*National Photographic Association*"—may its numbers swell—and we want you to *blow* for us while we *play* the organ, and scatter the soundings of your members harmoniously.

Our aim is high. Come and rise with us, and let us rise with you. There is a bright future ahead. Let us enjoy it together.

We fear nothing. Independent, yet sympathizing with all, we hope to keep ourselves freed from corruption, and to do good to the greatest number.

The *Photographer* to-day has more readers than any other journal of its kind ever had in America. Its contributors are the most eminent men in the art, and its supporters those who think, act, and *work* for the *good* of our art and its votaries.

It is the only journal of its kind in the world that publishes a photograph with each issue, and the only one that ever successfully accomplished such a task for any length of time, for a task it is. No one will dispute that the photography of this country has improved immensely during the two years past. This has been brought about, in a great measure, by the pictures in our magazine and by its contents. This year they shall all be better, and, at the end of it, further growth and improvement all over the country will be the result. It is our sincere desire to make our Journal a valuable power for good in the art, to keep it going, rising, soaring, high up among the arts, where it belongs.

But we have chatted enough, perhaps too much. Intrust us with $5 each of you for another year, and we promise you good returns. Happy New Year to all, and much success.

SALAD
For the Photographer.

An acetate toning bath should be twenty-four hours old before you use it.

Many photographers err in working in too much darkness.

Our foreign contemporaries generally rejoice with us over the defeat of the bromide patent.

The Germans sell photographs of engravings, landscapes, &c., as original photographs. Wrong.

Sulphocyanide of Ammonium makes a perfect substitute for cyanide for fixing, and is not much more expensive. Moreover, there is no danger in its use.

The cabinet portrait is said to have been first introduced in France, by M. Lewitzky in 1862, under the name of the "Keepsake Portrait."

A photographer of Pittsburg has been arrested for libel, in manufacturing and circulating pictures of the head of a young lady of that city, to which a little boy's body had been coupled.

When a bath is fresh made, and refuses to tone, don't throw away the solution, but add gold, treated with hot water, until the bath *will* tone. No difficulty will be afterwards experienced.—*News.*

Albumenized paper, excited and blackened by exposure, but unfixed, is an excellent thing for masks. Tin foil frequently causes spots and stains. Thick orange paper also answers well.

The scientific world is all confusion again over the formation of the latent image; the latest opinion—Mr. Becquerel's—being that it is due to chemical and not physical change.

An enterprising tailor about two blocks from our office, advertises "six cartes-de-visite of the purchaser free, with every suit of boys' clothes sold!"

The Weight of a Fluid Ounce.—The Troy ounce weighs 480 grains; the Apothecaries' ounce weighs 480 grains; the Avoirdupois ounce weighs 437.5 grains; the Imperial ounce weighs 437.5 grains; the Wine measure ounce weighs 455.7 grains. Thus the minim, Imperial measure, weighs .91 grains, and the Wine measure minim weighs .95 grains.—*N. Y. Medical Record.*

Be Careful.—M. Convreux recently addressed a letter to the French Photographic Society, stating that, in evaporating a bath of nitrate of silver, in which a portion of the water had been replaced by alcohol, he noticed a white, light precipitate, and hastily removing the capsule from the fire, he recognized in the filtrate fulminate of silver. He fortunately removed it from the fire in time to prevent an explosion.

THE STEINHEIL APLANATIC LENS.

Our readers have read the remarks of Dr. Vogel upon Steinheil's new aplanatic lens, from time to time, and, therefore, are somewhat familiar with it. We had one sent to us for trial by Dr. Vogel, and, so wonderful were its performances, that a gentleman to whom we loaned it became so enraptured with it, that we could not get it back, and had to sell it to him. He communicated, as to its good qualities, to one of our stock-houses here, and they have imported an assortment of them, and advertise them in proper place. We have, ourselves, in company with a number of others, experimented with two or three sizes, and the results obtained are truly wonderful. We can indorse the testimonials advertised, and know them to be reliable and true. The three gentlemen whose testimony is used, are all men grown gray in the business, and are therefore competent to judge. We shall make further trial with the lenses, and report more fully in our next, time and space forbidding it at present. Meanwhile, we add the letter of Mr. Ellwood Garrett, the gentleman of whom we have spoken, and who says he speaks only in moderation of this lens, which is not an exceptional one, but like the general run of them:

"As I receive many inquiries from all parts of the country, in relation to my Steinheil lens, and presuming that all in any way interested in photography read your Journal, I desire to avail myself of it as a means of communication with the fraternity.

"My lens, No. 3320, has an object-glass of 1⅝th inch diameter; focal distance, when drawn on views, 10½ inches (measuring from the central stop to the ground-glass). The diaphragm I use for portraits is 1⅜th inch, the largest of a full set.

"The lens will fully cover an 8 x 10 plate. I have made with it pictures 11 x 14, but with some marginal distortion; it works on groups, half-plate size, in my light (a strong one), in twenty to twenty-five seconds; whole plate, thirty to forty seconds; heads, three or four inches long, about two minutes, with better detail and less distortion than my mammoth tube, which is a good one.

"For children the tube is useless, but, for groups and for solar camera negatives, it is invaluable, as it enables the operator to arrange his subjects around tables or other furniture as his taste may suggest, *for the instrument has a practical working depth of ten feet on half-plate groups forty feet distance*, which pictures, now in your possession, will show; groups properly made by it, when enlarged, are without any distortion, and particularly full of detail.

"I consider that the lens introduces a new era in artistic photography; that the time of exposure may be shortened, I believe, but, until then, I would say to those who truly appreciate good work, try it. The price is very moderate; it is worth five times its cost to me in copying alone, for the negatives are always sharp."

The surprising cheapness of the lens is another strong recommendation in its favor.

THE "HOLMES' STEREOSCOPE."

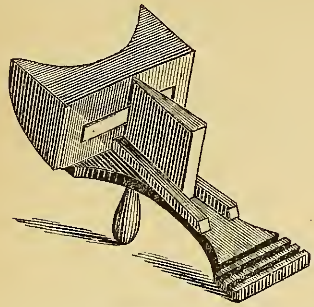
We were very much amused, a few weeks ago, to see that one of the American stereoscopes, in common use, had fallen into the hands of our esteemed co-worker in London, Mr. Valentine Blanchard, and, appearing to be new to him, was by him shown, and its excellencies commented upon, at a meeting of the South London Photographic Society. In his remarks he calls it "a very ingenious stereoscope of American manufacture; combines so completely all the excellencies of the most expensive instruments," and "only needed to be more thoroughly known to give a new impetus to a department of photography which has declined much during late years." In conclusion, he says: "I hope this instrument will be largely made by the dealers, and that, in consequence, the stereoscope will once more be put in the hands of every one."

"A great deal of conversation on the subject was engaged in, and a vote of thanks to Mr. Blanchard" was given, we learn from the report of the meeting, in the *British Journal of Photography.*

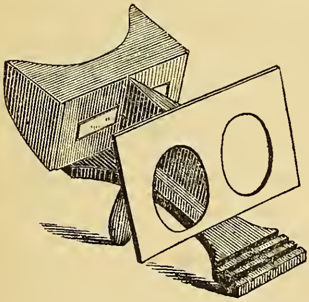
Impressed with the novelty of the instrument, in the same issue in which are Mr. Blanchard's remarks, our worthy brother, the Editor, gives place to an article on this same "new form of stereoscope," and, moreover, in his next issue, devotes another half page to it, giving a cut, and detailed description of it.

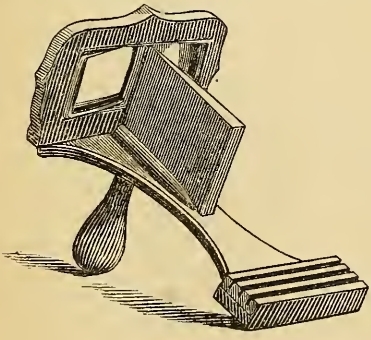
All this was quite as exciting to our risibles as it was flattering to our Puritanic pride, for we have been privileged to have one or more of this "new form of stereoscope" in almost every room in our house for a number of years back, and it is no new thing to us. Our children used it when they were old enough to sit alone, and we now have two or three with the hoods chewed out by little teeth which held on to it in that way, while both tiny hands were used to adjust the picture.

Moreover, we knew who was the parent of the "grandfather" of all similar instruments, and really thought it was at least *no novelty* in England, if not in common use. Seeing that such was not the case, we appealed to the aforesaid "parent" for a history of his bantling, and, on another page, our readers will find it in graphic detail from one well known to all of them—one who loves the art of photography, and is not unskilled in its practice—Dr. Oliver Wendell Holmes.

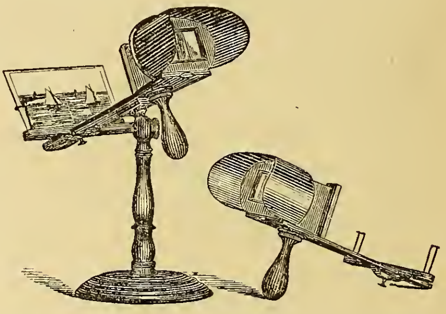


The tale is too well told for us to add to it. Dr. Holmes has very kindly intrusted us with the "grandfather," and above we give a wood-cut of it, without the Claude Lorraine attachment described by him, and follow with one with it, both made from photographs of the original. We, also, have a cut of one of the first copies of the pattern made by Mr. Bates, which we present below, followed by others of the same instrument, in its most modern, improved, and approved form.





Our brethren in England now have the whole story. We have tested the powers of the two old ones, and find them fully as excellent as the new, so far as effect is concerned. In that direction no improvement has been made, but we are certainly indebted to Mr. Bates for two important modifications: 1st, the sliding arrangement, by which the focus may be adjusted to suit any eye; and, 2d, the method by which the pictures are held in place—both very valuable improvements. The shipping and unshipping arrangement lately added by Dr. Holmes is, also, an excellent one when it is desirable to use a stand as shown in the figure below. The instrument, of which we find a cut in our valued contemporary, is not one of Mr. Bates's manufacture, but of a style well known to us, and of the commonest kind.



Many ill-made instruments are now in the market. Mr. Bates for some time enjoyed the monopoly of the trade in them, but he, following the example of Dr. Holmes, did not patent his improvements, and, the consequence is, the country is flooded with stereoscopes that should never have been manufactured, if the popularizing of stereoscopic pictures is desired.

Owing to the use of bad lenses in them, and the bad matching and adjustment of tolerable ones, we find many in the shops that are regular eye-twisters, making it quite as impossible for one to see straight for some time after using them, as it was for Mr. Pickwick to find his own bed-chamber in a certain hotel on a certain memorable occasion.

If photographers would study their own interests, they would refuse to buy or sell any but good ones, otherwise they will create a distaste for looking at the pictures, and thus decrease the profits derived from the sale of both. A perfect stereoscope should cause no more trouble to the eyes than looking through plain and clear glass. We are sure of a good one, if we get Mr. Bates's make.

DRY PLATES AGAIN.

BY CHAS. WAGER HULL.

MUCH has been said for, and very much more against this class of photographic work; those who speak for it, speak from experience; those who speak against it, speak from theory, far oftener from prejudice; consequently, it has not grown in photographic favor as rapidly as it should.

Some of your readers may wonder why I am again espousing the cause of a process (tannin), which they believed dead and gone years since. I will tell you. I have discovered another merit it has; one, so far as I know, not equalled by any other, to wit, the preservative, for a tannin solution once made is good until used; consequently, you are *always* ready to prepare tannin plates. Need more be said?

A few days ago I had a friend request me to make for him quite a number of glass transparencies of a label. I informed him that I had but three plates which I could spare, which were upwards of three years old; so, on these I made for him three transparencies; they were just what he wanted, and were very fine. Since then, I have prepared twenty other plates (in an hour and a half), and, in their preparation, used a tannin preservative, which was compounded in *May*, 1866, and each plate is as good as any I ever made.

The solution was made as follows:

Water, ...	80 ounces.
Tannin, ...	500 grains.

Dissolve and filter; after which add 20 ounces of alcohol.

The solution is as good as when first made, clear rich wine color, and absolutely free from mould or scum. It is well to understand that it was kept in a cool place, and was tightly corked.

I have often exposed tannin plates two years old, and some of over three years, with uniform success, and now have nine stereo plates over five years old, upon which I am confident I can produce as many good negatives. Is there any other process of which this can be said? If so, I would be pleased to hear of it, and of any advantages which it may possess over the much-abused tannin process.

Various have been the efforts, endless the suggestions which have been made, for dry-plate photography. Among the preservatives, let me name a few of the most singular, without any regard to their merits, but only to prove that "all hands and the cook" are busy trying to "better things," and, by these efforts to improve, admit that the "dry" is a most useful process, so soon as they succeed in making it just what *they* want it to be; but, so far as I am yet informed, it has not improved much from their doctoring, all things considered.

Not satisfied with experimenting with "things" which kill and destroy life, experimenters have rushed madly into the kitchen and the butler's pantry, and seized upon tea, coffee, sugar, gelatine, ale, beer, porter, claret, and, one extra ambitious chap, I have forgotten his name, took the bitters which he had purchased for his morning "cock-tail," and, by its use, reported that his negatives were superb.

Fate has been against dry plates, and, one principal cause of their unpopularity, can be easily traced to this fact: About the time of the introduction of tannin plates by Major Russell, the short-focus, small diaphragm lenses were introduced, and, by their greater field and depth of focus, at once becoming popular for out-door work, they served to condemn dry plates, for the reason that, with such lenses, the time of exposure was much too long for many kinds of pictures; all of which is quite true.

If we use, for ordinary landscape views, an old-style achromatic meniscus or view lens, and, for architectural subjects, one of Dallmeyer's rapid rectilinear lenses, we will be able to use dry plates.

I am the fortunate possessor of such, and do not hesitate to assert that, with the last-named, a negative can be made in ten seconds, when the light is good and bright, on a tannin plate. What more can be asked?

To such as may be using dry plates in this cold season of the year, and who are not very conversant with their peculiarities, I beg to state, that in their wetting for development, indeed, in all their treatment during each portion of the process, the water used should be heated to at least 80 degrees, or, better, 100 degrees of temperature, Fahrenheit. If used, as it now comes from the pipes, the plates will not develop properly.

If photographers would only consider all the little chances of improving their business, which are studied by the business man in his efforts to increase and extend his list of customers, they would be vastly benefited; for some reason, they do not, for, as a rule, they have not been educated as business men.

Should it ever be my lot to possess a gallery, I would have, hanging at my door and in my reception-room, a series of views of the town in which I was located, of its neighboring "beauty spots," such as waterfalls or pretty wooded streams; of the residences and grounds of the handsomest villas within its limits, not alone for sale to my visitors, but that they might be informed that I was quite as ready and able to photograph their homes as their faces.

To do such work, I would have on hand, ready for use on the instant, a stock of dry plates and a proper lens, and am certain, that by a little enterprise in this direction, my business would not only be increased at once, but that my reputation would grow rapidly, my advertising being done cheaply and thoroughly all the country about. There is not a country villa, or scarce a farmer's home in the whole land, which could not be photographed by the local photographer, especially when personally known to the owner thereof, if such owner was applied to, and good evidence given him by an exhibition of other work of the kind, that the photographer was qualified to prove his claims to ability to perform.

A good view-lens can easily be made of the back lens of any portrait combination tube, by using it alone, and reversing it, and by placing the diaphragms in front. This will answer for ordinary landscape work, where architectural subjects are not a prominent feature, and are not far removed from the centre of the plate. The back lens of a half-size portrait tube so used, should cover an 8 x 10 plate well.

In landscape work, as in all other from life, the larger the opening that can be used the better, not alone that it reduces the time of exposure, but gives a better picture; for just in the ratio of the increase of the volume of light passed by a lens, will the picture improve in brilliancy, and the shadows and dimly-lighted details be "worked out," without which your negative will be hard and far from pleasing. With very small openings, it is impossible to work into deep shadows by any process, wet or dry, no matter how long the time; as, with such, the illumination is so feeble that such details are not thrown upon the plate at all; every deep shadow is but a blank mass or black patch in the print.

BLURRING.

BY M. CAREY LEA.

In a late number of the *British Journal*, Mr. Plymley suggests that, instead of painting the backs of dry negatives with annotto or other color, to prevent blurring, to coat the back of the glass with collodion, in which *iodine* has been dissolved in the proportion of fifteen grains to the ounce.

The suggestion of a coating with collodion seems very good, but the use of iodine is very objectionable. Firstly, it is very volatile, therefore, if the plates were kept long, the protection might be expected to disappear. But, much worse than that, an atmosphere impregnated with iodine would be almost certain to diminish the sensitiveness of the plates. Of course, this could only be ascertained positively by trial, but there would be every reason to expect such a result.

I, therefore, would propose to substitute *aniline red* for the iodine. This substance is now quite inexpensive, and, by dissolving a sufficient quantity, the collodion will give a magnificent intense red coat, which, doubtless, would be very efficient. A very deep color would be necessary, as the crimson color of the aniline red would not stop the actinic rays as effectually as some other shades of red. But it is easy to make the color sufficiently intense to avoid this objection.

The red collodion film is easily washed off before developing.

THE $50 PRIZE PICTURES.

WE hardly need apologize to the competitors, and those who have ordered sets of the prize pictures, for our delay in sending them, longer than we promised.

At this season of the year the almost continuous bad weather, all well know, prevents rapid printing, and hence the delay we speak of. We shall endeavor to avoid it hereafter, as we are now ahead of the orders, and can fill promptly any more that come, unless they come too fast.

We offer to send these prints, 23 in number, handsomely mounted, postpaid, for $3. They cannot fail to instruct and benefit any one who studies and compares them, with the remarks of the judges upon them. True, the prints vary from those sent by the artists who made them, in some cases, but the character of a negative can be readily discerned by studying the prints, and we recommend the study of these, from good, bad, and indifferent negatives, as a refreshing source of useful information. We publish them at a low figure, to make them available to all.

The competitors have each been sent a print from one of the negatives of each competitor admitted by the judges, and in all cases two where the subjects differ.

PHOTOGRAPHIC MOSAICS FOR 1869.

FOR obvious reasons, we can say but little more about our little Year-book, than to announce that it is, and has been, since our last issue, ready for those who want it. It is gotten up fully equal in style to its competitors, and contains, as usual, 144 pages of closely printed matter, *all* practical and useful. At this writing, over two thousand copies are sold. No such sale of a photographic book is on record. No such amount of photographic information was ever given for the same money as is given each year in *Mosaics*. It has been our study, with our co-worker, Mr. Lea, to make it such a work as will be found valuable to refer to in matters of every-day trials in practice.

We believe our readers will like it, and ask them to try. In the cloth cover it makes a very pretty and substantial book.

Only 400 copies are left. Order early and secure them. Sent, postpaid, on receipt of price: cloth, $1; paper, 50 cents.

"It is a perfect little gem (not a ferrotype)," says a subscriber.

WRINKLES AND DODGES.*

Collodion.—For the last year or more, I have experimented a little with collodion. I think I can now exclaim "Eureka."

The best, quickest-working, clearest collodion I ever worked, giving best detail, especially to white drapery, I made as follows: Ether and alcohol, equal parts; gun-cotton, Anthony's, sufficient to make collodion of ordinary thickness. Excite.

No. 1 COLLODION.

To each ounce:

Bromide of Cadmium, . .	3 grains.
Iodide of Ammonium, . .	5 "

No. 2 COLLODION.

To each ounce:

Bromide of Potassium, . .	1 grain.
Iodide of Ammonium, . . .	6 "

In making No. 1, dissolve the excitants directly in collodion—this collodion ought to be at least a week old before using.

In making No. 2 dissolve the bromide of potassium in a little water and the iodide of ammonium in collodion. This will work, if only a day old.

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* Under this heading we shall, from time to time, print such items of practice as are received from the every-day worker, and we trust the new column will always be well filled by such.

To use, mix equal parts of No. 1 and 2, and, if it works too intense, add a little more of No. 2; if not contrast enough, add a little more of No. 1. In this manner you can regulate the intensity to suit yourself, and do it immediately; for instance, if you have a lady to sit, with a white dress, add a little of No. 2 to your flowing bottle, and, when you have done with that kind of work, if you wish, you can bring it back to medium intensity by adding as much of No. 1 as you added of No. 2.

I think no one will give up this kind of collodion after a fair trial.

I inclose you a poor cabinet print from a negative made, with this style of collodion, in rather a dark day, in four seconds.

Permanganate of Potash.—I have noticed some remarks, lately, in the Journal, in regard to the use of permanganate of potassium for treating negative baths. I never have tried it for that purpose, but find it one of the best disinfectants for old positive (printing) baths. In the use of this article in negative baths, you have something to guide you as to the amount required, &c. In positive baths it is different, for an old red, reduced bath will not indicate the *proper* amount to be added, by any perceptible change in color, &c. I proceed as follows:

Permanganate of Potash,	. 1 drachm.
Water, ...	. 2 ounces.

Dissolve the permanganate in water, and add with caution to the old bath till you obtain a milky, purplish color; let it remain over night after giving it a thorough shaking. You will find quite a large amount of foul matter has fallen during the night. The solution can now be filtered nearly clear. Now proceed as with an old negative bath, which is to add the solution of permanganate of potash, as above, to this filtered solution till you obtain a strong pink color; let it remain for a few hours, after stirring well before filtering; if quite alkaline, add C. P. nitric acid till it turns litmus paper pretty deeply red, then aqua ammonia until it is as alkaline as you usually use your bath.

The sediment which follows both additions of the permanganate, *may* contain a small amount of silver, but cannot precipitate much unless an excess has been used. I have never found any silver solutions to work better. I usually throw my old silver baths together till I have enough to make it an object to work them over. If this will be of any use to the subscribers of the Journal, you can use it and welcome.

W. KNOWLTON.

ELMIRA, N. Y.

HOW TO RECTIFY THE NITRATE BATH.—The following process is one that I have been using successfully several years, and I think it the best. It is as follows:

Put the nitrate bath into an evaporating dish; drop into it, carefully, concentrated ammonia until it is slightly alkaline, then heat it until it turns a dark purple color, almost black, when it will throw down a black precipitate; let it cool and filter; then add diluted nitric acid enough to give a proper acidity. If you wish to fuse the bath, it should be filtered after the precipitate is formed.

This, I have found the most reliable and certain of any process that I have tried.

D. RUSSELL HOLMES.

MILFORD, DEL., Dec. 14th, 1868.

PHOTOGRAPHIC SUMMARY.

BY M. CAREY LEA.

ENGLAND.

Strengthening Varnished Negatives.—Mr. Winter proposes to expose the negative, whose deficiency of strength has not been discovered until after varnishing, to the action of moderately strong alcohol, until the glassy surface of the varnish has been destroyed. This, alone, he finds sufficient to produce a great increase of printing strength.

This is certainly a very simple solution of the rather troublesome problem of strengthening a varnished negative, if reliable. The editor of the *News*, to whom Mr. Winter sends a specimen of a print taken before, and one taken after, this mode of strengthening, reports the difference between them as marvellous. This statement reminds me of a remark made some time back by a photographer, whose name I do not recollect, that a thin negative may be improved by using a dark-colored varnish, which, he affirms, is capable of causing thin detail to print that otherwise would not have shown itself in the positive at all. He, therefore, advises to keep such varnish at hand, to use it whenever the negative, on drying, appears to be thinner than it was intended to make it.

There is no doubt that the condition of the film of varnish has a considerable effect upon the printing. I have been in the habit of keeping both spirit varnish and benzine varnish by me, using the former habitually; the latter when the negative looks a little dense. Varnishes vary considerably in the amount to which they diminish the density of a negative, and there seems no reason why a brown varnish, such as shellac furnishes, should not be made use of to improve the printing in exceptional cases. It is hardly to be expected that this improvement should bring the effect fully up to what a negative will do when its thickness is such as to require no treatment. Such a negative must always give more brilliant effects; nevertheless, the methods above described may, doubtless, at times be really useful.

Nitrate of Sodium in the Printing Bath.—Mr. Fry gives his reasons for having abandoned the use of nitrate of sodium in the printing bath, as follows:

1st. The estimation of the strength of the bath by the argentometer cannot be correctly obtained.

2d. The deliquescent nature of the nitrate interfered with the sharpness of the prints by contracting and expanding. The change of size in a 24x19 sheet sometimes amounted to $\frac{5}{8}$th inch.

These, and some other less important arguments, Mr. Fry considers to settle the question as to advantage of nitrate of sodium.—*Photo News.*

Gum Guaiacum.—A correspondent of the *News* calls attention to the remarkable sensitiveness of this substance. An alcoholic solution, extended on paper, prints *green* as rapidly as bichromate of potassium.

[The sensitiveness of this substance has long been known; the above merely points out its extent. No method of fixing has been found.]

GERMANY.

Retouching Negatives.—As some sorts of varnish do not easily take touching with lead-pencil, Von Götz recommends—

Absolute Alcohol, . .	30 ounces.
Sandarac, powdered, .	5 "
Camphor, crushed small, .	1 ounce.
Venice Turpentine, . .	2 ounces.
Oil of Lavender, . .	1½ ounces.

For use, this is to be somewhat reduced with either weak alcohol, or strong alcohol to which one-twelfth water has been added.

Van Götz, however, recommends, in preference to lead-pencil retouching, to scrape off the film of a spoiled negative (of course, not varnished), and grind it up well with water, adding just enough gum and sugar to make it hold to the plate. The advantage of this system (which, however, is by no means new), is, that as the material is the same as that of the negative, the relation of density in the print will be the same as that in the negative, which is not the case when a different color is used. Thus, mistakes are more easily avoided. — *Photo. Correspondenz.*

[In a varnish, such as the above, it must never be forgotten that the Venice turpentine and lavender are both essential, and that without them the varnish will surely crack with time. Whether with them, it will last like a lac varnish, is uncertain.]

Thin Negatives.—The same writer advises, when negatives are too thin to print well, to apply Indian yellow on the glass side, previously well cleaned, and before it has time to become in the least dry, to work it up well with the finger till it becomes extended quite evenly over the whole surface.

[It seems doubtful if this is as good, and certainly is more trouble than applying tissue-paper.]

FRANCE.

Carbon Printing.—At a late meeting of the Photographic Society of Paris, M. Despaquis exhibited specimens, which were much admired, of carbon prints on "leather collodion." This last is a substance now introduced as a regular commercial product by Marion, and consists of collodion films to which strength and elasticity have been given by castor oil. They are extremely thin, and permit of exposures through them. This does away with all the troublesome transfers which are the bane of the regular process. The sensitive mixture is spread on these sheets, which, when dry, are exposed, film side next the negative, are developed with warm water, and attached permanently to glass. Despaquis remarks, that one great advantage of this process is, that soft prints can be got from harsh negatives by developing with hot water.—*Mon. de Photog.*

Photographs in Tombstones. — The English correspondent of the *Moniteur* mentions that it is becoming more and more common to inclose photographs of deceased persons in tombstones and vaults, and that when vitrified photographs are more attainable, this custom will be more reasonable.

OUR PICTURE.

Our picture this month is the one we have long promised from Mr. Charles Reutlinger, in Paris, and, when taken, the subject was Miss Adalina Patti, the sweet American vocalist, who has been setting the European public wild for a year or more with her charming voice. Since her picture was made for our Journal, she has been married, and is now the Marchioness de Caux.

We were promised, by Mr. Reutlinger, a full description of his studio and his method of working. It has not reached us yet, so, until we hear further from him, we must content ourselves with being able to give our readers so much as we can gather from the letters received from him, from a large photograph he has sent us of his studio, and from notes by our friend, Mr. Simpson, who has visited Mr. Reutlinger, and describes the studio in the *News.*

We intended to present a cut of it, but think we can make its construction plain to our readers in the description below.

It is of the inclined top form, the skylight inclining to the north, with a north side-light. It is about thirty feet long and twelve feet wide. The top light is of ground-glass entirely. The side-light is eight feet high, descending to within two feet of the floor. Three and a half feet of the lower portion are of ground or stippled glass, and four feet and a half of the upper portion of clear glass, which is the only clear glass in the studio, and such a light in this country would work very slow much of the year. We observe in the photograph that Mr. Reutlinger uses sliding curtains inside the light. No reflecting screen is used, the expanse of soft top-light through ground-glass sufficiently relieving the shaded side of the face from blackness.

The photograph before us represents the operator at work in the studio making a picture of a gentleman posed in proper place. Tasteful accessories, some of which have been made familiar to many by the reproduction of them in this country, by Messrs. Wilson, Hood & Co., Phila., and backgrounds, are seen in all parts of the room. When not in use, the backgrounds are rolled up on rollers fastened to the ceiling above. The lenses, we observe, are secured from the light by a projecting box fastened to the camera. The dark-room is at the side of the studio, and, in every way, the whole is very similar to many of our own American establishments.

In answer to some of our questions, Mr. Reutlinger says: "For the cabinet size and all my cartes, I use the Dallmeyer lenses, which I find equal, if not superior, to all others. My collodion I make myself, and use none but the very best materials for my bath, &c. If some of my pictures have been found superior to all others, although it has been said I possessed a secret, I declare that the only secret I know of, is the great pains I take, and the watchful eye of the master over his employés. I am always on hand at my rooms, making all the positions myself. Otherwise, my working is the same as that of all other photographers."

He believes it to be his duty to make his work as good as it can be, and, therefore, retouches many of his negatives. Some examples we have of vignetted heads from negatives so treated, are exquisitely fine and rich. Before retouching, he treats the negative with a solution of gum, which affords a "tooth," when dry, for the lead-pencil used in doing the work. After retouching, the negative is varnished.

These prints are from two negatives; one representing the fair subject in ball costume, and the other in the character of Marguerite, in the opera of Faust; both elegant specimens of photography.

We must not close without referring to the cards on which these pictures were mounted. They were also made in Paris, especially for the first picture in our new volume, at the extensive manufactory of Messrs. Rohaut & Hutinet, whose advertisement is familiar to our readers.

Surely, nothing more chaste, and neat, and elegant than these can scarcely be conceived. These gentlemen are large manufacturers of card-mounts and photographic boards of all descriptions, as well as of cases for pictures, stereoscopic mounts, &c., &c.

They have added a great many new designs to their list, which are very tasteful and beautiful. It is becoming quite popular now to have a *fac simile* of the autograph of the artist on the back of his cards. You have but to write it and send it to these gentlemen, and can have it exactly reproduced in any quantity. Some examples of this autograph engraving sent us are beautiful. It is a very pretty idea, and, when well printed in good colors, is very attractive.

Mr. Reutlinger, we understand, makes his own albumen paper, some of which has been imported, and is herein advertised.

Editor's Table.

Mr. Anthony's Toning Process.—Our readers will be much interested in the new toning process described by our New York correspondent. We visited Mr. Anthony a few days ago, and were shown by him some of his beautiful results. The process saves so much time, and has so many other advantages, that it must become very popular. Since seeing Mr. Anthony, he says in a letter to us: "Since I saw you, I have more closely studied this variation in the process of toning, and can only say I am more and more pleased with it. It is a great saving of time, and, in places where a large supply of water is not readily procurable, a great boon. The prints should not be toned too deep in the toning bath, as the action continues after their removal from the bath, and they increase in brilliancy and depth of tone, after being placed in water previous to being fixed. My toner assures me that it does not require half the gold formerly used, and the prints tone in a great deal less time, and, what is of great importance, tone very uniformly and evenly all over. If any one in trying the process should find the toning proceed too rapidly, a more thorough washing before toning will prove a remedy."

Mr. Lea informs us, that having seen a description of a peculiar stop proposed by Mr. Sutton, he has caused one to be constructed, and, from a first trial, is disposed to think favorably of it. Should further trial confirm this impression, he will give particulars and a diagram in our next number.

Since M. Salomon has created such an excitement by his admirable productions, several of the more enterprising and ambitious in this, as well as other countries, have tried to work in the same direction, and to the same results. The results our British contemporaries call "Salomoniac." We have received, since our last issue, almost the same day, several admirable examples from two of our subscribers—Messrs. W. J. Baker, Buffalo, N. Y., and S. M. Fassett, Chicago, Ill. We selected two of each by these gentlemen, framed them peculiarly and uniformly with two of M. Salomon's, and hung them on the wall of our sanctum. During the Convention many visited us, and, after looking about, would come upon these pictures, and exclaim: "Ah! these are Salomon's." After hearing their expressions and criticisms, we enlightened them, and, with considerable pride, declared that the most of them were by American artists. We could hardly give Messrs. Baker and Fassett a higher compliment, than to say that their work is like Salomon's. Some of those they send, however, are *not* as good as M. Salomon's. Mr. Baker has wonderfully improved since we last noticed examples from him. One of these, of a lady, in every respect seems fully equal to those by the great master. There is the same delightful richness and softness with elegant detail, and the same artistic skill displayed in posing. Mr. Fassett is also rapidly gaining upon M. Salomon—the picture of his colorist, Mr. Mulvany, and of Mr. Fassett's oldest son, being grand examples of photography. Mr. Fassett has not, however, been so happy in securing the rich tone and color attained by Messrs. Salomon and Baker, his tones being almost too black.

Certainly such work is very cheering, and we feel sure that, ere long, the public will appreciate and liberally patronize it. Mr. Fassett's prints are a little less than 8 x 10 in size. Mr. Baker's are fully 8 x 10, being made on glass of that size, all entirely available except the thick edges of collodion.

Mr. Baker also sends us some "Rembrandt effects," which are truly grand. One, of a portrait of a little girl, we consider one of the gems of our collection. We say to both of these gentlemen, *go on*, and success *will* be your reward.

We have received several copies of a circular from correspondents, accusing them of being infringers upon Shaw's patent for saving wastes. We shall treat upon the subject fully in our next, with cut of the apparatus. Meanwhile, do not be frightened at agents.

Professor Towler's Opinion of Mosaics and Lea's Manual — *Photographic Mosaics*, 1869.—This Annual is inestimable, containing, as it does, articles from foreign journals which ordinary readers have seldom an opportunity of perusing, the very cream of those journals condensed into a small volume of one hundred and fifty pages. In this way, that is, by means of the *Philadelphia Photographer* and the *Mosaics*, the American photographer is made acquainted with the status and progress of his art in the two hemispheres, at the cheapest rate possible. Both these publications are indispensable for the live artist.

A Manual of Photography, &c., by M. Carey Lea. I have perused this work, and am delighted with it. The fourteenth chapter, alone, is worth the price of the book; in this chapter we have thirty-four pages devoted to failures in photographic operations, and the operator will, in all cases, find here a clue to his troubles, and a remedy for them. The practical part is brief and to the point, plain and comprehensive. The philosophy of photography is discussed with a master's intelligence. In fine, there is no one in this country better able to write a work on the theory and practice of photography, than M. Carey Lea, for he combines in himself all the requisites of distinction and success: time, means, taste, intelligence, love for the art, fondness of research, industry, and perseverance.

How to Paint Photographs in Water Colors.—Mr. Ayres's new work bearing this title, is in press, and nearly all printed. We have read every word of it, and find it to be a capital book of instruction. The author is evidently well posted and practised in his art, and amply capable to teach. Those who read it carefully *must* learn to color. It will be ready in a few weeks.

Nine for Nothing, and "Thereby Hangs a Tale."—We will remove in *January*, 1869, from 501 to 591 Broadway. By "hanging a tale" to *nothing* (0) you have a *nine* (9), and you will thus remember our *New Number* whenever you hear the old saying: "Thereby hangs a tale."

E. & H. T. Anthony & Co.

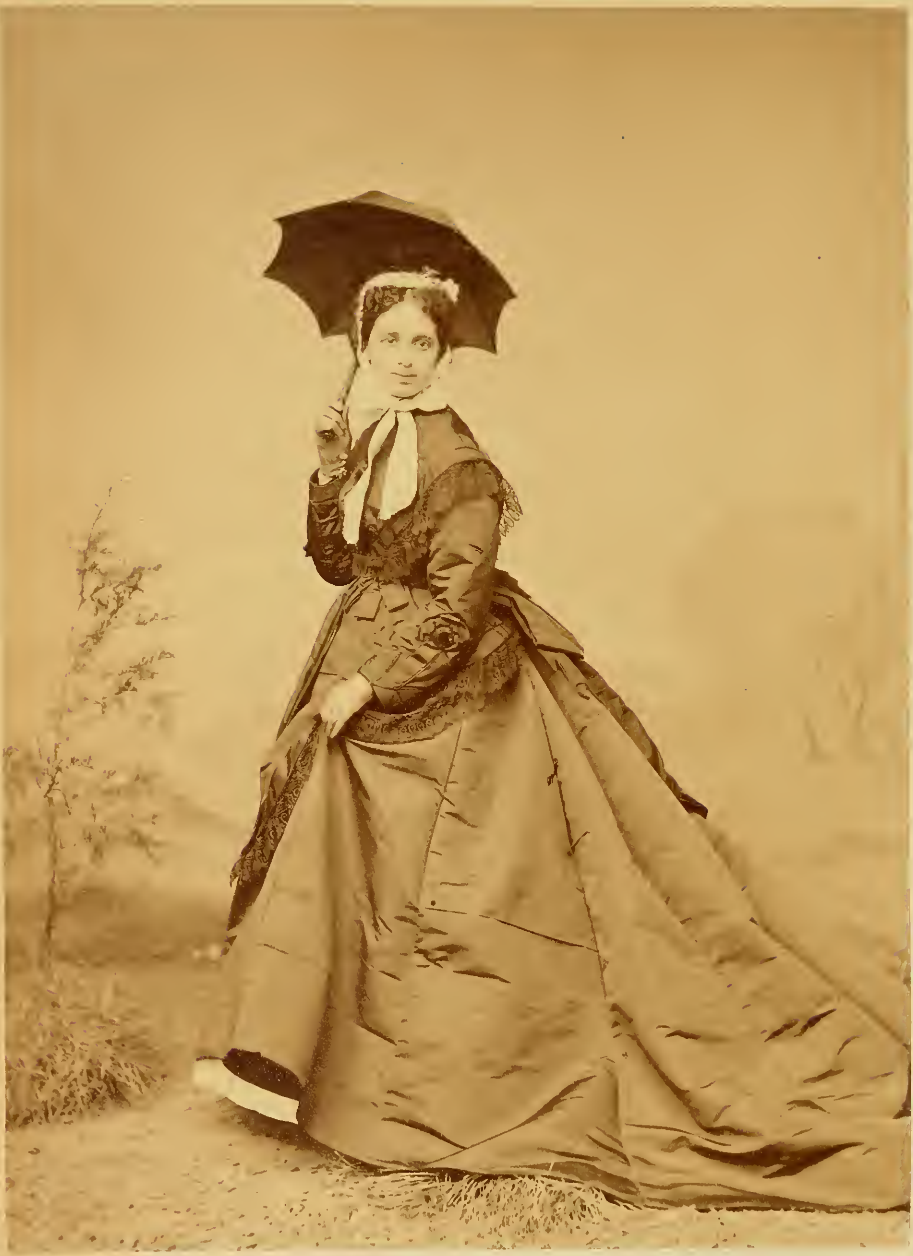
The above we find on all the many envelopes received from that well-known firm for a month or so. Don't forget the New Number.

The American Optical Company.—There is no article of manufacture we recommend so cheerfully as the camera boxes made by this Company. There is no *greater* joy to an operator than a good box. A bad one is a source of continual pest and trial to him. There is no trouble, however, with the American Optical Company's boxes. They always work splendidly, and are perfect in their mechanism. For these reasons they are the cheapest, and are as essential to good work as good lenses and pure chemicals. Scovill Mf'g Co., proprietors.

The American Institute is giving a series of scientific lectures, which those who are in New York, when they are delivered, would do well to attend. Those to follow, are at Steinway Hall, Fourteenth Street, on the evenings of January 6th, 13th, 22d, and 27th, and Febrary 3d and 10th.

Mr. A. J. Riddle, Macon, Ga., has favored us with a 10 x 14 copy of an autograph letter of George Washington, dated Mt. Vernon, March 17th, 1799—the last year of his life. It is an admirable photograph, and very interesting.

Mr. Frederick H. Eales, Rochester, N. Y., has opened rooms in that city, and is about to devote his time to stereoscopic and other outdoor work, in which we wish him the success he deserves, the several examples of his work before us proving him to be a careful, cleanly, and skilful worker.



T. R. BURNHAM, BOSTON MASS.

Boston Public Library.

The "Fifty Dollar Prize" Picture.

THE

Philadelphia Photographer.

Vol. VI. FEBRUARY, 1869. No. 62.

Entered, according to Act of Congress, in the year 1869,
By BENERMAN & WILSON,
In the Clerk's office of the District Court of the United States for the Eastern District of Pennsylvania.

THE NATIONAL EXHIBITION.

COMMUNICATION FROM THE EXECUTIVE COMMITTEE.

The Executive Committee of the *National Photographic Association* of the United States would announce, that in connection with the first annual meeting of the Association, to be held in Boston, beginning the first Tuesday in June, 1869, there will be an *Exhibition* of the productions of photography in all its varied branches, and also of instruments, apparatus, accessories, chemicals, and materials of all kinds in any way connected with, useful or necessary in, the art.

They invite specimens from all photographers in this and foreign countries, and from the manufacturers of all articles pertaining to the uses and advancement of photography.

The names of the Committee on Exhibition, the form of application for space, and the general rules of the Exhibition, will be announced in the next issue of the *Philadelphia Photographer.*

Foreign contributors will receive full particulars by letter, upon informing the Secretary of the Association of their intention to exhibit specimens of their work.

D. Bendann, J. Marsden Fox,
J. F. Ryder, J. Cremer,
J. W. Black, E. L. Wilson, Sec'y,
Ex. Com. N. P. A.

"SHAW'S PATENT SILVER AND GOLD SAVING APPARATUS."

Much of the feeling pervading against photographic patents, is caused by the broad and greedy claims of the patentees. Mr. Graball or Mr. Dullbrains discovers, for example, that permanganate of potash rectifies a disordered bath, and, in claiming a patent for the idea (to which he is entirely and gladly welcome, if it *is* his idea), makes the additional grave claim forsooth, that "the same result may be secured by the use of cyanide of potassium, nitric acid, sunshine, *and other equivalents*, which he *desires to secure* by Letters-Patent." He thus *makes* every photographer in the land, who takes a good journal, and *knows* everything, use every effort to evade his patent, and to taunt him with it. How much better it would *pay* him if he would drop his efforts to pillage "equivalents," and push his *invention* on its merits. If it is *better* than anything else used, it will sell, in spite of equivalents; but it will not, if he claims what does not rightfully belong to him.

We are led to these remarks by the reception of several letters from as many correspondents, inclosing the circulars of an invention bearing the title heading this article. The tone of the circular is, at first sight, irritating and presumptuous, and calculated to excite feeling *against* the patent, rather than to enlist favor for it. It begins as follows:

"Sir: We have become convinced and well satisfied, from the best and most reliable information which we have been able to obtain, that you are now, and have for a long time past been engaged in infringing upon Shaw's patent for saving silver and gold from waste solutions, and we hereby notify you, and all other parties who are infringing, that we are about to take legal steps to properly substantiate our just rights, and shall, forthwith, proceed to institute legal proceedings against all who, after receiving this notice, still persist in wilfully infringing upon said patent, and that we shall claim suitable damages for all past infringements, as well as for the future; and for the purpose of giving yourself and all others a full and fair chance of ascertaining how far you are infringing upon the same, we herewith publish a few extracts from said patent, as granted by the Government of the United States."

It then follows with what are *said* to be "verbatim" extracts from Mr. Shaw's specifications of his patent, but which are perverted and twisted around, and *not* "verbatim," unless the copy we have received from the Patent Office is not "verbatim." The circular then goes on to say:

"Well, you say that is a very broad claim. We grant it, and it was expressly so framed and devised as *to cover every possible device which could be invented for accomplishing the same end.* And why does he make that claim? We answer, because he claims to be the first who ever made use of a combination of chemical and mechanical means for the purpose of recovering and saving silver and gold from the waste solutions in a photographic gallery. . . . . And until it can be disproved before some competent tribunal, and some one else shall have been proved to have invented and used the same, or an equivalent device before he did, his rights cannot be gainsayed, and we shall hold you and all others strictly liable in suitable damages for all past, as well as for future infringements or use without a license from us. Signed, The Shaw & Wilcox Company."

Who this "Company" is, we do not know, nor have we ever seen their apparatus, but we think they do indeed make "a very broad claim" and no mistake—more than they can ever substantiate—and, in order that our readers may themselves judge how far they "infringe," at the risk of giving the "Company" an excellent advertisement, we give a drawing of the apparatus below, and endeavor to make plain its construction, deriving our information from Mr. Shaw's patent specifications and drawings in the Patent Office, a copy of which is now before us.

He there says: "The nature of my invention consists in placing under the waste-pipe of the sink or basin over which solutions of silver and gold are used, a vessel to receive the material escaping from the sink, which vessel is provided with such chemicals as will cause the silver or gold contained in the liquids falling into it to be precipitated, while the surplus water and other worthless material is allowed to escape through a waste-pipe *after first passing through a filter or strainer.*"*

We will now briefly describe the apparatus, assisted by the drawings, the first of which represents it as if it were of glass.

FIG. 1.

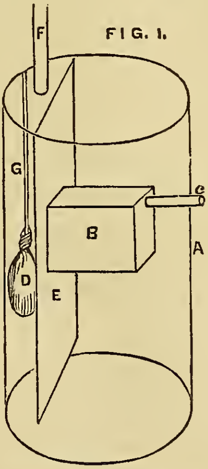
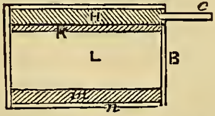


FIG. 2.



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* The *italics* are ours.—Ed. *P. P.*

A, is the outside case, open at the top and closed at the bottom. F, is the waste-pipe of the sink above. E, is a partition extending entirely across the case and down to within one inch of the bottom. D, is a cloth bag containing protosulphate of iron, suspended from the top of the case by the string G, about midway between the top and the bottom. B, is a filter with a waste-pipe, C, near the top, extending from the inside of the filter to the outside of the case. This filter is of wood, open only at the bottom, and its construction made more plain in Fig. 2. Immediately underneath this waste-pipe, a cloth strainer, H, is stretched across the box and secured thereto. Under this strainer is a layer of cotton batting, K. At the bottom, another layer of cotton, *m*, and a second cloth strainer, *n*, is placed as the other, and the space L, between the layers, is filled with sawdust. An open space of about an inch is left between the upper strainer and the top of the box. The machine, as thus described, is now ready for use. The waste passes from the pipe into the case, comes into contact with the bag of iron, and the metal is precipitated. As the vessel fills, the water rises in the filter, and thence out by the waste-pipe, C. Our readers can now tell whether or not to become frightened at the "Company's" harmless and ridiculous circulars. Mr. Shaw adds: "This filter may also be made in a variety of ways." What does he mean by his ambiguous "*variety* of ways?" His claims are as follows:

1. "Attaching to the waste-pipe, . . . a vessel so arranged and constructed, that the liquids passing from the sink shall run into, through, and out of said vessel, and between the time of entering said vessel and escaping therefrom, shall be brought into contact with such chemicals or metals as will cause the whole, or any part of the silver contained in the solution, to be precipitated and retained in said vessel, while the worthless material is allowed to escape.

2. "The use of the filter B, or its equivalent, for the purpose of preventing small particles of silver from escaping after the liquids have been brought into contact with the chemicals as described."

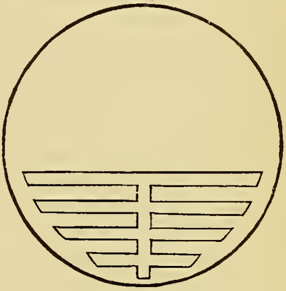
Judge ye, whether or not ye "infringe."

ON NEW DIAPHRAGMS.

BY M. CAREY LEA.

We all know that the difficulty which is encountered in obtaining clouds in a negative, arise from the excess of illumination which they receive. The darkest part of a cloud is often lighter than the brightest part of the rest of the landscape. Various contrivances have been suggested to obviate the difficulty, the oldest and best known of which is the common sky-shade.

About a year ago, I contrived an arrangement which is represented below. The figure there drawn inside of the circle, which indicates the size of the lens, represents a set of parallel narrow bars connected by a transverse bar. This is cut out of soft, dark paper, blotting, not sized paper, and is attached to the lens itself, with the aid of a little paste. I used it upon a view lens, the lower half of which it thus partly covered. The bars must not be too wide nor too near together.



Their proper size will always depend upon that of the diaphragm with which they are used; each bar and each space between two bars must be less than half the diameter of the stop used, otherwise, a shadow will be produced, and will show itself on the ground-glass and in the negative. When this cross-barred diaphragm is properly made and properly applied, it does not appear at all upon the ground-glass, and its effect is only to largely diminish the illumination of the sky.

Other occupations have prevented my working with this contrivance as largely as I intended, but, in a few trials made, I succeeded in getting some beautifully defined and shaded clouds, as perfectly, or almost as perfectly as if they had been taken alone, and without reference to the rest of the landscape, which by the aid of this contrivance, was obtained simultaneously, and fully exposed.

I considered this paper arrangement as a merely temporary one, and intended to have a similar figure cut out of thin metal, and fastened to a ring which should hold it in place. Although the paper was only lightly attached to the glass, and could be easily removed by moistening with water, yet, still greater facility of changing was needed, as it might be desired, in the course of a morning, to take some pictures with and some without this secondary stop. The metallic substitute would obviate this objection. Before, however, I carried out this intention, I saw mention of an idea suggested by Mr. Sutton, which, although an ingenious one, seems to have attracted no attention whatever. I caused two stops, of the sort proposed by him, to be made for me; they have been exceedingly well executed by Mr. Zentmayer, and I am disposed to consider the invention one of the most valuable that has been brought forward for a long time; it has even an advantage, as I shall show further on, that was not foreseen by its inventor.

The idea is simply that the plate in which the stop is pierced, shall be *inclined*, instead of being, as usual, at right angles with the axis of the lens. Thus, the beam of light admitted from the foreground corresponds with the full size of the diaphragm, whilst that from the upper part of the picture is greatly reduced in size. The inventor calculates, that by inclining the stop at an angle of 35°, the proportion of light admitted from the foreground will be four times that from the sky.

Thus, the sky portion of the picture is kept back, and time allowed for the foreground to impress itself.

The mechanical contrivance to effect this object, consists of a tube of metal slightly conical, and of a size to pass by its smaller end into the largest of the stops, and by reason of its conical form, to catch fast when passed half way up. Inside of this conical tube is a piece of metal which occupies an inclined position, and in it an opening is made of such size as is judged proper; it should have the same diameter as that of the stop with which the lens is most commonly used, or may exceed this by a little.

In Fig. 1 the inclined stop is seen, and the much larger beam that it admits from below than that from above. (By a mistake of the engraver, the larger beam has been made conical, to the right of the lens. Its sides should, of course, be parallel, like those of the smaller beam.) In Fig. 2, the conical tube is seen with the inclined plate and the opening of the stop cut in it. Fig. 3 is a section of the same when set in place.

FIG. 1.

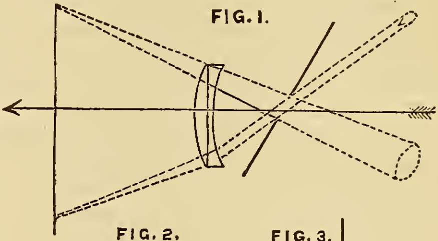


FIG. 2.

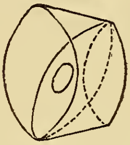
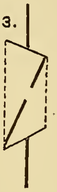


FIG. 3.



The inventor suggests a second advantage, that even when it is not desired to attempt clouds, or when there are none to attempt, it may frequently happen that if we suppose the view to be divided by a diagonal line, one of the parts will be much less illuminated than the other, and so tend to produce too great a contrast in the negative. In such a case, he would propose to turn the stop round to an angle of 45°. Thus, of the light coming from the less illuminated part, a much larger proportion is admitted, and a useful approximation to equalization is obtained.

This application of the inclined stop, I believe to be not only effectual, but to equal in usefulness, the original object of the arrangement.

On banks of streams with elevated sides, or in any uneven country, it will very often happen that masses of shadow present themselves, into which it will be an object to get as much detail as possible; these cases offer themselves in very varied forms, but with the common characteristic that one of the front corners of the picture is deficient in illumination by comparison with the other, and in all such the inclined stop will be useful.

I now come to a third useful property of this stop, and one which does not seem to have been observed by its inventor.

Any one who is familiar with landscape taking, will have observed *that the two upper corners are the weak points of the picture.* In the most ordinary, general positions assumed by the principal portions of a landscape, it will be found that the central objects, which are most commonly in the distance, can be got into reasonably good focus together with the foreground, but often not easily with the upper corners, if the objects in these last be at some distance. If, for instance, the upper corners be occupied by trees farther back than the foreground, these will often present serious difficulties. To get them into satisfactory focus along with the rest, requires a great reduction in the size of the stop, and then the boldness and character of the picture suffers.

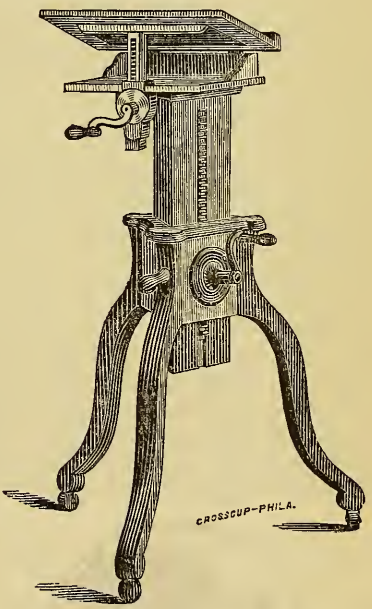
Now, the inclined stop offers, in such cases, a very welcome aid. It functions for the foreground like a large stop, for objects along the horizontal line as a medium stop, and for objects above that line as a small stop. In this way we can have improved definition of the upper corners, without the reduction of the stop otherwise necessary. It is true that there is a greatly reduced illumination of the upper corners, but the objects that fill these upper corners, if, as in the case which I am expressly supposing, they are in the middle distance, are most commonly so well illuminated that a reduction of light is mostly rather advantageous than otherwise. If the upper corners are filled by *near* foliage, the use of this stop will, of course, be improper, unless, indeed, this foliage be in strong sunlight. (If both upper corners be occupied by near foliage, and one be in sunshine and the other in shadow, then one of the previously mentioned properties becomes applicable, and the stop may be turned diagonally so as to let in most light from the shaded foliage.)

The third mentioned quality which I have pointed out, that of functioning as respects the upper portion of the picture as a much smaller stop, and giving increased depth of focus, appears to me at least equal in utility to the other two indicated by the inventor.

In this new stop, therefore, I think we shall find a useful addition to our appliances. I have not, as yet, had an opportunity of testing it as fully as I wish, and as I expect to, but, from what I have seen of its action, my impression is altogether favorable.

A PERFECT CAMERA STAND.

The cut below represents the camera-stand described in his letter by our New York correspondent.


CROSSCUP-PHILA.

We think it is as near *perfect* as a camera-stand can well be made. It is not only good, but it is handsome, and will be an ornament to every photographic studio whose owner is happy enough to possess one like it. It is as full of movements as a manikin, and quite as useful to the artist-photographer. Those who work with good tools save time and money.

PHOTOGRAPHY AFTER DARK.

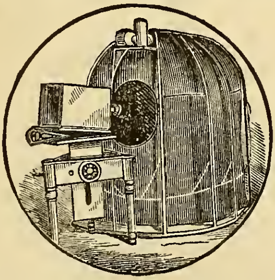
We have frequently stated that the time would come when the magnesium light would be available and useful in making photographic portraits, and after several experiments, presented with our January, 1867, issue, the largest picture we have ever seen made at night. We were not wrong in this conjecture, and below describe a contrivance which seems to answer perfectly, and which is the invention of Mr. George K. Proctor, Salem, Massachusetts.

It consists in constructing a room for photographing purposes, of such a form, that the rays of magnesium light placed within it will be reflected and concentrated upon the person or object to be photographed, so that photographing may be successfully performed at night by artificial light, or other than that of the sun.

The room or apartment is of oval form, and elongated, so as to have an internal curved surface, which will reflect the rays of light from a lamp or other luminary, in proper place, upon the subject.

It is made of oak bows bent into proper shape, and covered with paper cloth, which by large eyelets in the edges, is hung on hooks inside the bows. It stands about 6 feet high, 5 feet wide, 6½ feet long, and weighs about 35 pounds.

An opening is made in the curved end of the room or apartment for the end of the camera (which is adjusted by the operator outside) to pass through, and the other end of the room or apartment is open to admit of the ordinary background for the picture, to be placed in proper position relatively with the person or object to be photographed.



The figure above shows the position of the whole apparatus needed in operating at night, in working position. Mr. Proctor uses a kerosene lamp for focussing, and feeds the magnesium for lighting the subject by means of the clock-work lamp described in our Journal, vol. iv, page 21, or a similar one.

To this lamp an indicator is attached, which may be set at the discretion of the operator to indicate when the time necessary for an exposure has expired. This lamp may be seen at the top of the figure, the highest point being the chimney for the escape of the smoke of the metal. Of course, the camera stand, and camera with the lens pointing into the room, are understood. The upright white lines in the figure represent the bows, and the horizontal line near the bottom, a cord used for drawing in the cloth to make it curved inside. The edge of the background may be seen at the back part.

We have not had an opportunity of testing the invention yet, though we hope to soon. Mr. Proctor declares that the best part of his *day's* work is done at *night*. He applies his invention to solar printing and copying also. The cost of making a card negative, for light, is, he says, about nine cents, and the exposure fifteen to twenty seconds. His invention will certainly be a boon to those who cannot take time to have their pictures made in the daytime, and to the photographer in unfavorable weather. We have some very good pictures made by Mr. Proctor by means of his useful invention.

COPYING AND ENLARGING BY MAGNESIUM LIGHT.

BY JOHN CARBUTT.

About a year ago I made some experiments, in copying and enlarging, by the aid of the magnesium light, more particularly in enlarging by the development process from carte-de-visite negatives, and with a success quite encouraging. The result of those experiments has enabled me this winter to make use of the magnesium light in such a variety of ways, and with, in every instance, such satisfactory results, that an account of them may prove of interest to your readers. I use the American Magnesium Company's lamp, constructed for magic lantern purposes, and illustrated in No. 37 of the *Philadelphia Photographer* for January, 1867, and use but one strand of ribbon at a time. The lamp is placed in a box just large enough to easily admit it. The front of the box carries a four and a half inch condenser of the compound form, differing in shape from those supplied by the American opticians, but which is, I believe, now commonly used by the London opticians in their best magic lanterns. It is formed of a double convex and a deep meniscus lens, the concave side of the latter placed towards the light, and was made for me by Herman Roettger, of Philadelphia. I am fully satisfied this is the best form of condenser to use with the magnesium light. In front of and close to the lantern-box, I place a small camera, from which the lens tube is removed and a carrier for the negative substituted. The lens is adjusted on the back of the camera where the ground-glass is usually placed; both camera and lamp-box are temporarily fastened to the table or bench; a piece of flexible tubing is slipped over the lamp-chimney, and the other end of the tube passed out of the window or into a flue, to carry off the fumes from the burning magnesium. The lamp being now ready, light the wire with a small spirit flame, and quickly adjust the focus on a piece of plain white paper. Having done so, stop the clock-work of the lamp and proceed to sensitize the paper and place it in position on the board (it is scarcely necessary to add, that the room in which this is being done must be excluded of white light). Place in front of the enlarging lens a piece of yellow glass, then light the metal ribbon in the lamp, at the same time starting the clock-work. If the enlargement is to be a vignette, use a piece of card-board about 13 x 16 inches in size, having a hole about the shape and size of an egg in its centre, holding this between the enlarging lens and the sensitive sheet. Remove the yellow glass and allow the light to act from one to three minutes, according to the size of the enlargement and the intensity of the negative. Place the cap on the tube and examine the sensitive paper by the aid of the spirit-lamp. If the shadows or dark parts of the image are visible, the exposure is sufficient; if not, allow the light to act till they can be seen, then take down the print and apply the developer, wash, fix, etc.

The formula published by you a short time ago,* will be found to work very satisfactorily. I prefer, however, to have some chloride present in the iodizing, and have found the following to be a very sensitive formula:

Serum of Milk, . . .	1 ounce.
Iodide of Potassium, . .	8 grains.
Bromide of Sodium, . .	3 "
Chloride of Sodium, . .	2 "

Sensitized with—

Silver, ...	40 grains.
Water, ...	1 ounce.
Glacial Acetic Acid, . .	10 drops.

Both solutions are spread on the paper with Canton flannel.

But the greatest benefit I have derived this winter from the magnesium light, is in the making of copies, ranging in size from the carte-de-visite to 14 x 17. The following from my memorandum book will explain: "Enlarging from a thin card negative to a 6-inch head on a 14 x 17 porcelain plate, wet collodion process; exposure, 45 seconds; weak iron developer, quite acid; perfectly satisfactory result." "Enlarging from a $\frac{1}{9}$th ferrotype about 5 diameters; distance from the front lens to the ground-glass, 36 inches; exposure, 2 minutes; negative every way satisfactory." "Enlarging from a $\frac{1}{6}$th daguerreotype to a $\frac{4}{4}$ vignette head, a little over 2 diameters; exposure, 45 seconds; resulting negative I could not possibly improve by sunlight." "Enlarging from a $\frac{1}{6}$th daguerreotype to a 14 x 17 negative for a vignette head; exposure, 3 minutes; a little under-exposed." "A transparency from a card negative enlarged 1 diameter; exposure, 40 seconds; fully timed. An enlarged negative from the above transparency, on a 11 x 14 plate; time of exposure, 3 minutes; too much time; had to redevelop the high lights a little to get roundness."

I have made quite a number of the ordinary card size, the exposure averaging about 30 seconds, using a No. 1 Dallmeyer triplet open lens. For copying a card photograph the same size, I prefer the magnesium to sunlight, as it secures a much smoother copy. Not the least important part of using this light for copying, is the way in which the light is directed on the picture to be copied.

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* Vol. v, page 323.

The mode I have found best, I will now endeavor to explain: Set up the picture to be copied before the camera, get the size and focus adjusted. If you are working at night, a large kerosene lamp will do to get the size and focus by. Then place in the camera the sensitive plate, and draw the slide; now take the lamp and box having the condenser in front, light the lamp, and direct the light on to your picture in such a way that a circle of light, about 2 or 2½ inches, is on the picture, then, by giving a slight motion to the lamp, the light can be made to cover the whole surface of a card or other small picture. It is important, whenever the picture is small enough to admit of it, to use the circle of light formed *inside* the cone of rays from the condenser before it diverges, for, at that point, the light is perceptibly more powerful than when used after passing the focus of the condenser. I have, on several occasions, finished printing a collodio-chloride print on porcelain after daylight had ceased to act. Wednesday before New Year's I had four enlargements still to make and finish. I made the four within an hour, and, with the last and most important, my wire gave out, but, luckily, the exposure had been sufficient. The portrait was finished in time, for which I feel inspired to say: *Vive! la Magnesium!*

PRACTICAL NOTES ON PHOTOGRAPHIC SUBJECTS.

BY G. WHARTON SIMPSON, M.A.

Simplified Carbon Printing.—I have recently received from Mr. William Blair, a gentleman who has for many years been engaged in experiments in carbon printing, and to whom the credit of many valuable practical experiments is due, some very interesting examples of carbon printing, by processes in which he endeavors to simplify and reduce the number of operations at present used in Swan's process. The examples are of two kinds; some being produced by a single transfer process, and others by a direct process without transfer at all. The first are the finest, and are, indeed, as perfect as need be desired. The idea of producing the prints by the single transfer process, instead of the two transfers commonly used at present by Mr. Swan, and others who practise his process, is not of course new, being provided for in Mr. Swan's patent. The interest attached to the examples of which I am speaking, consists in the excellence of the pictures, and the simplicity and efficiency of the method employed in producing them.

Mr. Blair uses a carbon tissue of similar character to that used in Swan's process, or, in fact, the tissue of Mr. Swan, and sensitizes it in a bath of bichromate in the usual way. After exposure, in which a reversed negative should be used,* the exposed tissue is mounted, face downwards, on the paper, which is to serve not merely as its basis during development, but as the final support of the image. This is effected as follows: a piece of albumenized paper a little larger than the print is brushed over with strong alcohol to partially coagulate the albumen, and suffered to dry. After this, it is immersed in clean water, face upwards; the tissue is placed in the water also, and the two are lifted up face to face, and, after draining very slightly, not more than a moment or two, the print or prints, being placed between sheets of thick blotting paper, are placed between two boards, under a weight. If many prints are under treatment, they remain there until all are ready, after which they are subjected to heavy pressure for a few hours, either in a bookbinder's press or letter-copying press. The especial point at which care is required in this operation, is when the tissue is placed in the water. Unless despatch is used at this point, the tissue begins to absorb water and curl, which renders it difficult to keep its face in contact with the albumenized paper.

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* The method of transferring negatives I recently described, affords an admirable method of securing these reversed negatives.

When the mounted tissue is dry, and is removed from the press, it will be found that the bichromate has soaked quite through the albumenized paper, and Mr. Blair prefers to fix a portion of this in the paper by exposing the back for a few minutes to the light. The mounted tissue is then plunged for a few seconds into boiling water to complete the coagulations of the albumen; after which it is placed in tepid water and allowed to develop in the usual way. After this, and washing in cold water, the print is finished, and needs only to be dried, trimmed, and mounted.

The direct carbon prints, in which no process of transfer is used whatever, possess some degree of half tone, but they are not so perfect as prints exposed on one side and washed away or developed on the other. The details of this process I hope to communicate to your readers on another occasion.

Remedy for Fogging in Developed Prints.—I have recently been engaged in some experiments in order to discover the cause and cure of fogging in prints produced by development. For enlarged work, developed prints are extensively used in this country, and I presume that development must be used in greater or less degree for enlargements even in your brighter climate. With the novice in development printing, a peculiar kind of fogging is a very common trouble. The print, instead of possessing pure lights and deep shadows of brown or black, possesses dull-gray whites and weak-brown shades, whilst, by transmitted light, the whole presents a mottled-brown effect. The silver salt, in short, instead of being reduced in the exact ratio of the action of light in forming the image, is reduced in some degree throughout the whole of the paper, and a dirty, foggy, imperfect picture is the result.

There are several very obvious causes for fog or discolored lights in developed prints, which are analogous to the causes of fog in the collodion process, such as the use of insufficient acid in the silver bath or developer, the too long keeping of the paper after it is excited, plunging the print after development into a weak or old hypo bath, without previous washing, etc. One very common and very much overlooked cause, is the action of diffused light. It is difficult to bring the novice who has been accustomed to the ordinary process of printing fully out, in which the action on the paper of a feeble light is not regarded, to believe that in printing by development, light should be as carefully excluded from the prepared paper as from an excited collodion plate. And hence, a little white light being permitted to reach the paper at some stage of the operations, degraded whites or general reduction is the result.

But the cause and remedy to which my experiments have been especially directed, deal with a defect which sometimes occurs when all the ordinary and recognized conditions of success appear to have received attention. I have been able, in the course of my experiments, to produce or prevent fog at will, without altering the condition of any of the preparations or materials used. The remedy, although familiar to dry plate workers, has not, I think, been suggested or applied before in relation to paper prints.

I find that in the paper print, as in a dry collodion plate, freedom from fog depends largely on the presence of a portion of the haloid salt employed in preparing the paper remaining unconverted with a salt of silver. If the paper be floated sufficiently long on the silver bath to convert the whole of the iodide, bromide, or chloride into silver salts, the tendency will be towards fog; and where excess of iodide and little bromide or chloride is used, the complete conversion is much the most readily effected. If the floating be short, and especially if a full proportion of bromide be present, a portion of it is not converted into a silver salt, and its presence during development operates as a powerful preventive of fog in the print.

I have tried adding a trace of bromide or chloride to the gallic acid used for development, and find it a most effectual preventive of fog; but, if used in excess, it will very seriously retard development, and will also tend to the production of a print wanting in force and richness. It must be used, therefore, with great caution. My experiments have not been sufficiently extensive to enable me to decide on the best formula or proportions; but that is a matter which will be easily decided by the experimentalist himself, the more so that the exact proportion required will doubtless vary with circumstances.

Influence of Moisture on the Progress of Printing, and the Quality of the Print.—Some curious illustrations have come under my attention lately, showing the effect of moisture on the quality of a print, and also on the progress of printing. One of my correspondents sent me a print possessing singularly little contrast; the whites were printed through, whilst the deepest shadows had not gone beyond a light brown. It looked like an impression from a thin collodion positive. I was informed, however, that it was from a fine, vigorous negative, and the statement was confirmed by another print from the same negative, which was brilliant and forcible. The most curious part of the matter was, that it was said that the feeble flat print was not only from the same negative, but from the same paper excited at the same time as the brilliant print. Whilst I was at a loss to solve the difficulty, another letter came, which explained it. The weather being damp, the printer had noticed that the bibulous paper used at the back of the sensitive paper in the pressure-frame, had got very damp, and, between printing the brilliant picture and the singularly feeble one, he had thoroughly dried the double-folded sheet of blotting-paper. The printing of the next progressed very slowly, and, although he continued it until all the whites became thoroughly printed through, the blacks scarcely seemed to progress at all, and did not proceed beyond a light brown tint. He did not connect this result with the thorough drying of the blotting-paper until the next day, drying the blotting-paper in another frame produced precisely the same results, and, using it a little damp, restored the brilliancy of the printing. I was recently reminded of this by a letter from another correspondent, containing a similar account, and suggesting that advantage might be taken of the fact, to secure soft prints from hard negatives. He says:

"As sunshine is rather scarce now, a plan which will enable unlucky photographers who have harsh negatives, to get the same softness in the shade as they could in the sun, may be to some extent useful. It is very simple, consisting only in placing next the paper a pad of cloth, dried more or less, according to the degree of softness required. My attention was drawn to it some time since, by finding some very flat, poor prints among a batch otherwise very satisfactory. This continued for a few days. Naturally, as Mr. Bovey says, I blamed the paper, for I *knew* (not guessed) that the chemicals were right. But careful observation showed that good and bad prints were sometimes produced *from the same sheet.* So the paper was out of the question.

"I then found that the printers, finding some of the cloth pads used in printing were damp (after wet weather), had dried them. So we put out several pictures with pads dried in different degrees. They came in softened in corresponding ratio. One was brought in with this remark: 'Please, sir, this won't go any darker; it hasn't gone on at all the last hour or so!' In this case both paper and pad had been put in *quite* dry and warm. The lights were printed through, while the deepest shades were hardly more than middle tints, and the whole horribly mealy.

"For still further proof, a picture was printed with a dried pad behind one-half, and an ordinary one behind the other. The proof was complete!

"Though this plan may, with care, be sometimes useful in producing passable prints from negatives otherwise too harsh, it must be remembered that not only is it very easy to spoil them quite, but that, at the best, the softness is of the character of mealiness to some extent. So, when circumstances admit of a better plan, do not use this. It is not, however, to recommend its use that I mention this, but because I think it explains a frequent cause of failure.

"Many writers advise drying the paper *thoroughly;* and in dry weather the pads will also get rather dry; then the printing is bad, and both paper and toning bath are blamed, when, perhaps, neither are in fault."

The importance of moisture is more marked in the case of collodio-chloride of silver than with albumenized paper. I have met with occasional complete failures with paper prepared with collodio-chloride of silver, both prepared by myself and by Herr Obernetter, especially if the collodions have been of a horny character, which, when once perfectly desiccated, did not readily absorb or even admit moisture again, and have traced the fault to the perfect dryness of the paper. In the Wothlytype process, in which collodion containing nitrates of uranium and silver is used, moisture is a most important condition in securing the proper reaction under the influence of light, failures always arising if the prepared paper were exposed in a state of perfect desiccation. Dry chloride of silver is scarcely sensitive, in any degree, to the action of light. I have in my possession a bottle containing chloride of silver prepared by the action of chlorine on silver foil, the foliated form being still preserved by the chloride of silver. It was prepared about nine years ago by Dr. Alfred Taylor, the well-known toxicologist and professor of chemistry at Guy's Hospital, who requested me to preserve it without disturbing the stopper of the bottle, and test its sensitiveness to light. During the nine years it has frequently stood for days in diffused daylight without darkening in the least, and it stands in a cabinet before me now, still quite white. Without further dwelling upon the facts or entering into the theory of the action of light on chloride of silver in the presence of other bodies capable of combining with chlorine, I think I have said enough to suggest the importance of giving some attention to the hygroscopic condition of the paper in printing, and to the condition of the cloths and pads used in the printing-frame.

Emolliotype Portraits.—In a recent very successful exhibition held in the rooms of the London Photographic Society, some very pretty portraits excited attention, which were labelled "Emolliotypes." They had a peculiar diaphanous softness, without any want of vigor, and the effect was very charming. Mr. Netterville Briggs, the exhibitor of the pictures in question, has recently described to me his method of producing them. The "emolliotype" consists of a good albumenized print made transparent with white wax, and mounted with the same material on opal glass; a piece of colorless plate-glass is cemented in front of the print also with wax. Some little skill and practice is required to secure perfect contact of all surfaces, which is, of course, absolutely necessary, and great care is required to expel air-bubbles. It is necessary to work with everything warm, or the tendency in the wax to chill would spoil the manipulations. The print having been selected, and made transparent with melted wax, the plate of opal glass is warmed, and a little of the melted wax poured on one end, the back of the print is then brought into contact with it with a sliding motion, which spreads the wax and removes air-bubbles, or rather prevents their formation and imprisonment, at the same time. This done, a little melted wax is poured on the face, and the colorless, transparent glass, having been warmed, is placed on the print also with a sliding motion, to prevent the imprisonment of air-bubbles. The print, thus mounted between two glasses, is placed under a weight in a warm place. The weight drives out any excess of wax, and, when all is set, the picture is placed in a case or frame. With colored pictures, the result is very fine indeed.

IMPROVED ALBUMEN PROCESS FOR OPALOTYPES.

Some months ago you published my process for making *permanent* porcelain pictures. I have since modified it so as to make it more certain and satisfactory, and now think it is all one could desire. Take of—

Albumen, ...	2 ounces.
Water, ...	1 ounce.
Chloride of Ammonium, .	6 grains.

Dissolve the chloride in the water, add it to the albumen, beat them to a stiff froth, and let settle.

SILVER SOLUTION.

Nitrate of Silver, . .	1 ounce.
Water, ...	1¼ ounce.
Alcohol, ...	12 ounces.

Dissolve the silver in the water, pour out one-third, and add ammonia until the precipitate is barely redissolved; then add it to the other two-thirds. Clear it again with nitric acid, and then add it to the alcohol, shake well, and filter.

To use the above, proceed as follows: coat the porcelain plate with the settled albumen, using heat from an alcohol lamp or stove. Prepare a number at one time, as they keep well. Make the plate warm, flow it with the silver solution (the same as you would flow a developer over a plate), keeping it on for one minute. Drain and wash off the excess of silver with alcohol. Dry and fume five minutes, print, and tone with any good formula for toning albumen prints. Fix in hypo, 1 ounce, to 10 ounces of water. Wash for four hours at least. Caution: have the plates *well warmed* before flowing with the silver solution, or, on drying, they will dry dead, and appear like ground-glass.

William Bell,
Photographer,
1200 Chestnut Street, Phila.

NATURE OF THE IMAGE FORMED UPON BROMIDE OF SILVER.

BY M. CAREY LEA.

Mr. Sutton has lately published a theory of the action of light upon bromide of silver, in which he takes up the opinion that, in the combination formed by silver with the organic material acting as sensitizer, the whole nitrate of silver enters bodily, nitric acid and all, into the compound.

In support of this curious doctrine, he has written many pages, but I cannot see that he has made a single experiment. Before insisting upon the presence of nitric acid in the film, it would seem to have been well to endeavor, by chemical tests, to have proved it.

Some investigations published by me last summer, had already disproved Mr. Sutton's theory before it came into existence. I there showed that sensitive plates of bromide of silver could be prepared *direct from metallic silver*. As no nitric acid had been present at all, of course it could not exist in the sensitive compound.

The experiment was as follows:

A film of pure metallic silver was formed upon a surface of ground-glass. This, after thorough washing, was converted into bromide of silver by immersion for a length of time in strong aqueous bromine. It was then washed well and tanninized. Exposed to light, it received an image which was developed in the usual way.

This experiment is evidently fatal to Mr. Sutton's theory: it shows that the sensitive combination can be formed in the entire absence of nitrate of silver and of nitric acid in any form, and, therefore, it is altogether impossible that nitric acid should enter into its composition in any way.

PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

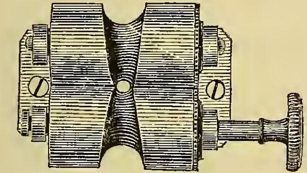
The regular monthly meeting was held on Wednesday evening, January 6th, 1869—the President, Mr. Frederick Graff, in the chair.

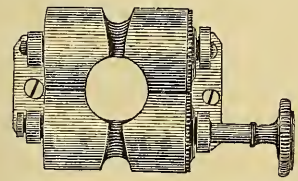
The minutes of the last meeting were read and approved.

Mr. Tilghman offered, for the examination of the members, two pictures, which he mentioned as the Alpha and the Omega of photography. The first was a daguerreotype portrait made by Mr. Robert Cornelius, June 15th, 1840. Considering that this was one of the first pictures made, the result was very good, showing what had been accomplished in the very early stages of that art. Although so many years have elapsed since it was produced, yet time has not effaced or seriously damaged its condition. As a valued curiosity, it was carefully examined by all present. The second picture was a photograph upon porcelain, made by Mr. F. A. Wenderoth. This form of picture might properly be called the encaustic photograph. It is burned in, in a furnace, and appears to be the most permanent of all silver pictures. Mr. Wenderoth has given much time and attention to this subject, and has produced many fine results. The surface of each picture is protected by a glaze, which prevents injury from rubbing, and is so hard that the edge of a knife cannot make any impression upon the finished photograph.

Mr. Draper presented a number of cabinet pictures, good alike in pose and chemical manipulation.

Mr. Joseph Zentmayer exhibited a very ingenious model of an adjustable diaphragm, designed by himself. This form of mechanical diaphragm differs essentially from Mr. Schnitzer's, who used a number of wings, four or six in number, opening and shutting towards a common centre, somewhat similar to Mr. Collins's diaphragm described in "Beale on the Microscope." Although Mr. Schnitzer undoubtedly deserves the credit for the invention of adjustable diaphragms, the serious difficulty with their use has been that the opening was not round, but four or six sided. Mr. Zentmayer claims for his adjustable diaphragm, that the opening is exactly round. It consists of two rollers of the same diameter, geared together by delicate cog-work, so that they revolve upon each other. On each roller, in a plane perpendicular to the axis, a tapering semicircular groove is cut, the corresponding parts of each groove being opposite. Then, by revolving the rollers, the circular opening formed by the contact of the two grooves, gradually enlarges or contracts, depending upon the direction in which the rollers are turned, the rollers being so accurately set together that no light can pass, except through the diaphragm. The motion is so gradual, that unless some form of index is used, it would be next to impossible ever to obtain twice exactly the same size of opening.





A good idea of this mechanical arrangement may be had from the cuts above, the construction being similar to that of the rollers in a rolling-mill. Instead of the grooves being cut straight, they are tapering. In other respects the similarity to the rolling-mill is correct.

Applied to the microscope, this plan would answer perfectly, but, used as a diaphragm in double combination photographic lenses, it would, in some cases, be objectionable, although it could be used to advantage in single-view lenses. The cause of difficulty is, that the diaphragm will not remain absolutely permanent in the same plane.

Mr. Davids offered for examination a great variety of photographs made from foreign paintings, many of them being copies of paintings over three hundred years old, taken in places which were very dark and difficult of access to the photographers. Some of the subjects were of frescoes.

Mr. Davids asked if any of the members knew what kind of plates had been used? also, if artificial light had not been used in many cases?

A number of suggestions were made. Among them, Mr. Blanchard's plan of dipping wet plates. But little positive information was gained on the subject.

On motion, adjourned.

John C. Browne,
Recording Secretary.

GERMAN CORRESPONDENCE.

Thanks to the National Photographic Association—Albert's New Method of Printing—Grüne's Method of Photoxylography—New Permanent Silvered Paper—The Sulphocyanide Toning Bath—Brown Color for Collodion Positives.

The press of business, incident to my long absence from home, compelled me to omit my correspondence for the January number of your Journal, and only now a short breathing-spell enables me to collect the novelties that have presented themselves in the meantime in the realm of photography.

While thus busily engaged, I was surprised by the glad tidings that the National Photographic Association of the United States had made me one of its honorary members. The acknowledgment of my humble services, coming from the united photographers of the free United States, is more prized by me than any title or decoration which a prince could bestow upon me, and it shall encourage and stimulate me to continue in my efforts, and to devote all my energies to prove worthy of the honor. Please to give to these few lines, with which I accept the nomination, a place in your excellent Journal.

In the happy humor in which I have been placed by the above news, it becomes a somewhat difficult matter to return to my prosaic occupation of reporter; however, I will do my duty.

Many persons have, for years, on this as well as on the other side of the Atlantic, devoted their means, their time, and their energy, to the solution of a problem: the production of photographs in half-tone by means of printing in a press. You are acquainted with the efforts in photolithography, in photographic copper and steel plate printing; much has been accomplished in the reproduction of line engravings, but, in half-tones, the very best of samples left much to be desired, and the conclusion was finally reached, that with fatty inks no good half-tones could be reproduced, and gelatine inks were substituted, *i. e.*, the Woodbury process.

The hope was expressed that this process would solve the difficult problem, and the public were waiting patiently for its practical introduction, but, while the profession was arguing for and against its merits, suddenly appears Herr Albert, of Munich, one of the best photographers of Germany, and presents a whole album full of photographic prints, executed with fatty inks, in which the half-tones are of such exquisite beauty that all our photographers, photolithographers, photoxylographers, and ferrographers, stand dumbfounded, and ask: How is such a thing possible?

These new prints are, by no means, small specimens like the samples of so many other processes, but, amongst them are proofs of a size of 20 inches, not only on paper but on silk also, and, so perfectly beautiful in the half-tones, that they much resemble photographs on plain paper. The method of their production is still a secret, but a sample you will receive very soon I have found out, however, that Albert employs a plan similar to the one of Tessie du Mothay, in France; like him, he prints very likely from a layer of chromo-gelatine, taking for a foundation, however, not metal, but glass, and this is probably the cause of the wonderful homogeneousness of the surface (which cannot be produced with metal or stone), and that perfect absence of "grain" which is necessary for the reproduction of photographic half-tones. Another important point is this: that while M. Tessie could only take 76 impressions at the most, Herr Albert can take 1300 prints from his plate, and the expense of making a picture, 16 x 20 inches, is about 10 groschen (33 cents currency), and the process will pay even for a dozen pictures.

He requires reversed negatives for his process; the copies from ordinary negatives have the right and left reversed; this circumstance, however, is no drawback, for either the negative can be removed by employing "leather collodion" as you have described in your columns, or reversed negatives are produced directly from nature. The latter can be accomplished in a twofold manner: First, by reversing the sensitive plate in the plate-holder; in this instance we have to contend with the errors caused by the inequalities in the glass. Secondly, by means of a mirror, and here the time of exposure has to be increased, as the mirror absorbs a considerable quantity of light. Albert employs a prism in front of the object-lens; the back of the prism is silvered, and absorbs so little light that the time of exposure is lengthened only by one-tenth.

In copying from these negatives on the sensitive layer of chromo-gelatine, which forms the mould from which the prints are taken, he tells me that he employs my photometer for determining the proper length of time.

At present, he is engaged in soliciting the patent rights from different countries; when these are secured, he will sell his process.

While he has thus solved an interesting problem, another important method of employing photography in the art of wood engraving, has been brought before the public by Mr. Grüne, the well-known chemist and photographer. In former times, I have alluded to his interesting communications on the changes which a silver picture is capable of undergoing.

Grüne places the collodion picture into a solution of platina, transforms it into a platina picture, which is burned into porcelain, appearing of a black color, or he places it into a solution of gold, when, by means of the burnishing tools, a gold picture will appear on the porcelain; in this manner he has placed gold and silver decorations on glass and porcelain, etc., etc.

Curious is the observation which Grüne has made, that the silver picture lies on the collodion film, not in it, and he proved this before our society, by rubbing the picture off the film with his finger moistened in oil, leaving the collodion film perfect and intact.

This peculiarity he utilizes in the following manner: he transfers the positive collodion picture to wood, and removes the collodion film with ether, leaving the picture, with all its details perfect on the block of wood, when it serves the engraver for a drawing; no remnants of the film interfere with the work of the engraver, and the original is reproduced with perfect fidelity.

I have had a number of illustrations for my photographic hand-book transferred to wood in this manner, and you will find a specimen of the "photoxylography" in the last number of the *Mittheilungen.*

While speaking of Grüne, I will communicate his formula for giving a fine brown color to collodion positives (transparencies): He takes, for this purpose, the mixture proposed by Selle, of salts of uranium and ferrocyanide of potassium (red prussiate of potassium). Selle proposed this mixture for intensifying, and it is very well adapted to this purpose. Take—

1 gramme Nitrate of Uranium; 100 grammes Water (filtered).

1 gramme Red Prussiate of Potassium, 100 grammes Water (filtered),

and mix the two after filtration.

It is best to place the positive or negative into this fluid, moving the dish backward and forward; this will make the color more uniform. The pictures tone, in this solution, a beautiful brown; when a darker or blackish brown is desired, Grüne recommends a previous immersion in a solution of platina, washing, and, afterwards, the application of the solution of uranium and prussiate of potassium. Platina, alone, tones black, and this, with the brown of the uranium, causes an intermediate tint.

Of other novelties, I will mention a number of sensitive papers which are offered for sale, ready silvered. A number of chemists have made this subject their study, since Obernetter brought out his invention, and the latest sample is one by Schaeffner & Mohr, in Paris. Their paper is sensitized with carbonate of silver, and has the peculiar quality, that it is only sufficiently sensitive in the presence of ammonia. These gentlemen propose to fume the cushions of the copying-frames with ammonia, by placing them in a box containing a dish with carbonate of ammonia and slacked lime; for the toning of this paper they use a sulphocyanide toning bath, which, curious enough, contains acetate of soda.

The formula is:

Sulphocyanide of Ammonium, ...	80	grammes
Fused Acetate of Soda, .	20	"
Chloride of Sodium, . .	10	"
Chloride of Gold, . .	¼	"
Water, ...	1000	"

Whether this paper proves a success or not remains to be seen, but the sulphocyanide toning bath deserves the greatest attention, particularly in winter weather. I have used the same with advantage on ordinary albumen paper; it gives great depth and brilliant whites, and has the advantage that the pictures lose very little in toning, which obviates the necessity of much overprinting, a matter of some importance in winter weather.

I use Cherril's formula:

Gold, ...	1	gramme.
Sulphocyanide of Ammonium, ...	20 to 40	"
Water, ...	1000	"

The picture turns reddish at first, but afterwards a brilliant violet black.

Yours, very truly,

Dr. H. Vogel.

NEW YORK CORRESPONDENCE.

The Photographic Section of the American Institute met on Tuesday, January 5th—Professor Charles A. Joy in the chair.

Mr. C. W. Hull exhibited and explained an original and most capital camera-box, possessing many advantages not yet combined in such apparatus, designed by Mr. M. Flamming, superintendent of the American Optical Company's works, and the inventor of such portions of the box as are original. I shall now attempt to describe it, though I fear it will be impossible for me to do so without engravings.

The object of the invention is to overcome the necessity of the cumbersome and not altogether satisfactory "swing-backs," by having the lens more vertically and laterally, as may be required, to bring near objects situated in the foreground, or upon one side, equally in focus with those in the distance, by so changing the position of the lens relatively to the ground-glass or sensitized plate as to effect this end.

Upon the camera-box is placed a half-circular front, outside and over which moves the board, to which the lens is attached, up or down, or vertically, thus giving that motion; this is fastened to the camera-box by a pivot-hinge at its vertical centre, thus giving the side or lateral motion, the whole being so contrived as to exclude every particle of light.

It is claimed by the inventor, and was conceded by the gentlemen present, that every advantage of the swing-back camera-boxes, are, in this simple and ingenious apparatus, combined, and that it can be attached to any box and used for any sized lens. The writer has undertaken to experiment with the box, and will report at the next meeting as to its working.

Mr. Flamming also exhibited a new camera-stand, which met with general approval. It stands upon three legs, between which is a triangular column, which is moved up and down by means of a rotary screw attachment upon one side of the triangle; it remains at any point without fastening, but, to remove all danger of vibration, the handle by which you move the stand is so arranged as to act as a set-screw. The top or table part, upon which the camera-box rests, is hinged, as is usual, at the front, and is raised or lowered by the same rotary screw movement applied at the hinder end of the top, and upon which the top rests. The movement is steady and certain in its action, and not at all likely to be injured in use.

By the use of this stand, the operator is not required to remove his head from beneath the black cloth, but can, by a simple movement of the hand, elevate or lower the camera, or alter its inclination to or from the sitter at pleasure, and while he is viewing the image upon the ground-glass.

Mr. Carl Krüger exhibited a series of photographs of his new rest; it is not a head-rest, rather a combined head, arm, and body-rest, of ingenious construction, and invaluable to all in our art who make fancy or unusual positions. By its use, some most astonishing work was produced, as men exercising with swords, both arms extended and elevated; a newsboy running and holding a paper out, at arms length, seeking a customer, and very many more of the same character of difficult positions, all perfectly sharp and natural. It is a sort of tripod, from the top of which rises three rods with arms attached, all being provided with several sections or parts and universal joints, held by set or thumb-screws, so that they can be bent in any direction to suit the bend of the arms or inclination of the head. The tripod or stand portion of the apparatus is so constructed, by having the legs in two parts working in a slot held by a screw, that either leg may be made longer or shorter, as desired, and are so placed as to be hidden from sight by those of the person whose picture is being made. At the next meeting a completed rest will be exhibited. The same gentleman, who is associated with Mr. Merz, also exhibited some half dozen 8 x 10 portraits and groups, made in his gallery with out-door backgrounds printed in, of remarkably fine effect, displaying skill, taste, and laborious patience in their production.

Mr. H. T. Anthony produced, from a little sort of a satchel 10½ x 2½ inches, and weight about four pounds, a complete photographic outfit for field use, consisting of a camera, focussing glass, four double-back shields containing eight dry plates 3¼ inches square. The tripod was a fair size walking-stick, the whole of London manufacture, exceedingly ingenious and splendidly made. My friend, Mr. Anthony, is never behind in novelties of interest to us all; those he has not, he knows of, and can tell us all about.

The Society received, from Mr. Thomas Gaffield, of Boston, some superb fern prints, produced by first placing the ferns over a sheet of silvered paper, and printing in the usual manner, and using such afterwards, as the negative, from which any number may be had.* The effect is truly beautiful, and would afford, to any photographer or lady, amusement and tasteful work of endless variety.

Professor Joy exhibited quite a number of stereo slides, so engraved as to not only represent crystals in their true form, but as well to give the lustre and translucent effect of the real crystal. The groundwork of the slide is a dead black, one view being white, with black lines to give the form; the other black, with white lines for the form.

Mr. Drummond stated that he had produced similar effects, by placing a rose-diamond in a concentric lathe, and causing it to mark irregular lines upon a blackened card-board.

Professor Joy read the following important and interesting letter from Professor Tyndall, which tells its own story:

> My daylight hours have been recently occupied with the question of the chemical action of light upon vapors, and also with the blue color and polarization of the sky. These questions, which have been so long the great enigmas of meteorology, have, I hope, at length been brought within the grasp of experiment, and have been, to a great extent, satisfactorily solved. The condensed summary of my results is, at the present moment, in the hands of Sir John Herschell, who has manifested great interest in the inquiry. As soon as he sends it back to me I shall hasten its publication, and it will give me pleasure to send you a copy of it. J. Tyndall.

Professor Joy promised to give full information on the subject to the Society as soon as he received it.

The "American Carbon Manual," edited by Edward L. Wilson, was presented by the publishers, and received with thanks.

Mr. Kurtz spread out upon the table a series of his extraordinary Rembrandt photographs. I am not able to do justice to them here, but some of them are, before long, to add to the beauty and value of your Journal.

On motion of Mr. Hull, each member was required to donate to the Society, at each meeting, one photograph of his own producing, upon the back of which was to be written the date, together with any peculiarities attending it, as to toning, fixing, washing, varnishing, &c., &c., with a view of being enabled, years hence, to determine, if possible, which of the many ways of many men is the best.

Ever yours, &c.,
C. W. H.

A REST FOR THE WORLD.

Another handsome and useful apparatus is the *photographic rest* described in our issue for July, 1868. Several hundred photographers are already enjoying its advantages. We may as well confess that it is a bantling of our own, the idea partly borrowed, as we have before acknowledged, from a co-worker in England, but, we are told, much improved by our own additions to its usefulness. We have endeavored to find out the objections prevailing against it, and to overcome them. The *great* objection seemed to be that it was too heavy to lift about. *Weight* in a head-rest is a very good thing, but objectionable when it has to be carried about much.

We think a description of the figures below, will make it plain that the machine is now almost equal to every want. The post or base of the rest has been made several inches lower, narrower, and heavier at the bottom. The bottom has been cored out, and a sub-plate introduced which carries three wheels. This sub-plate is raised and lowered by means of a rod and lever, as shown in the figure. By pressing down the lever, the rod, which is fastened to the sub-plate below, is pushed down, and throws the whole machine upon the wheels. It can then be rapidly moved over carpet, floor, or matting, wherever desired, and, by removing the hand from the lever, it flies back to its place, the sub-plate is hidden in its cavern below, and the machine is again as fixed and firm in place as a seventy-five pound weight. The smaller cut below is an under view of the sub-plate. With this improvement we think it must be an acceptable article of usefulness to every photographer. It is well made in all its parts, saves time in posing, prevents motion, works as smooth as a piston-rod, will answer for a child three years old or a man seven feet high, never pinches the fingers, stays *put* in all its parts, will last for a lifetime, will not fall over easily, and will not break if it does. It is used in many of the best studios in the land, and its advantages over all others soon repays for the outlay required to possess one. See advertisement.

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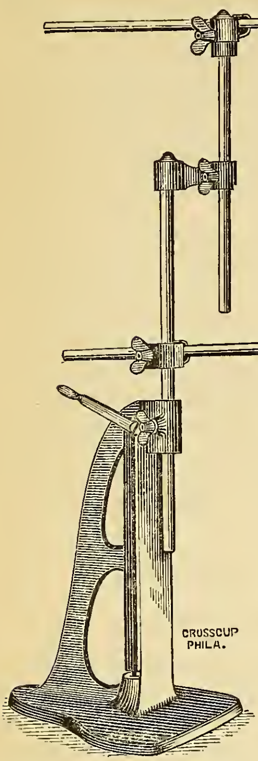
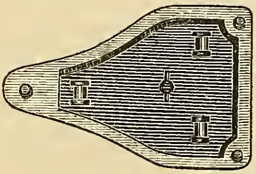
* Full instructions how to make them, with a 4-4 specimen, are given in our "Leaf Prints, or Glimpses at Photography," by Professor Himes, $1.25.—Pubs. P. P.





THE PORCELAIN PICTURE.

HOW TO MAKE IT.

BY GEORGE H. FENNEMORE.

MANY excellent formulæ, for the production of these beautiful pictures, have been published, both in Europe and the United States, and, therefore, I have nothing, perhaps, that is new to offer in the shape of formulæ, my object being more especially to point out some of the reasons why many fail to produce good results with any degree of uniformity.

As the collodio-chloride process is the one principally used, and as it is the one most beset with trouble to the inexperienced, I shall confine myself chiefly to it. With care, however, it may be made to work with great uniformity. I have tried many of the chlorides for the production of chloride of silver in collodion, but can find none that answers so well as lithium. My formula for collodio-chloride is as follows:

Nitrate of Silver, . .	60 grains.
Chloride of Lithium, .	8 "
Citric Acid, . . .	8 "
Plain Collodion, . .	8 ounces.

A French journal recommends the use of tartaric acid in place of citric acid, as giving more brilliant results, but I do not find it so. Perhaps it is because I could not get as pure a sample of the acid here as can be obtained in France. Those who wish, can try it; the proportions are the same. The general complaint of those who fail in making porcelain pictures, is that the collodion will work very well for a day or so, and then becomes useless. There may be several reasons for this, but the principal trouble is in the mixing. The ingredients are generally dissolved in water, and added to the collodion. Now, unless great care is taken in mixing them in this way, failure will be the result from the start. The reason is, that ether and alcohol dissolve but a very small portion of nitrate of silver, and when a solution of silver in water is added to the collodion, the excess of ether and alcohol will precipitate a large portion of the silver to the bottom in very fine transparent crystals, which are not visible on account of the creamy appearance of the collodion, and thus we are deprived of the excess of free nitrate of silver, which is absolutely necessary for the production of brilliant pictures. Moreover, the result is a rusty-looking, slate-colored print; whereas, had the proper proportion of chloride and free nitrate been combined in solution, the result would have been a vigorous print, of a bright cherry-red color.

Another thing should be borne in mind, that when two solutions are poured together, the *one* having the power to precipitate the contents of the *other*, they should always be poured together very slowly, and with frequent agitation, unless, indeed, we wish to produce a precipitate on the bottom of the vessel in the shortest possible space of time. In making collodion, we want the reverse, *i. e.*, a very fine deposit, and to have it remain suspended in the collodion for the longest time possible. A collodion that allows the chloride of silver to fall to the bottom in any appreciable quantity, will never make a first-class picture.

Having given the above explanation of the nature of precipitation, for the benefit of those who do not fully understand it, I now proceed to give my method of making the collodio-chloride:

To four (4) ounces of ether and three (3) of alcohol, I add forty (40) grains of gun-cotton; dissolve and filter.

I have two eight-ounce bottles; the one containing the filtered collodion, the other empty. I now put sixty (60) grains of silver in a small mortar, and pulverize it very fine. I then add a few drops of water, not enough to dissolve it, but enough to make it into a white, pasty mass. I now pour in a small portion of the plain collodion, and triturate it with the pestle until saturated, then let it stand for a minute or two, to let the undissolved portion settle to the bottom. Then carefully decant it into the empty bottle, pour more on from the stock-bottle, grind, and decant as before, and so on until all is dissolved. In this way I get the silver in perfect solution. So far, it can be done in the light. Now, I wash out the mortar, and put in the eight (8) grains of chloride of lithium, eight (8) grains citric acid, and one (1) ounce of alcohol, and dissolve. I now go in the dark-room, and add it to the collodion, a drop or two at a time, shaking thoroughly after each addition until all is added.

It is now ready for use. This collodion does not look white, but has a thin, bluish-white look, partially transparent, and without sediment. It will work well to the last drop.

The plates should be albumenized with fresh albumen, and be perfectly dry before being used. They should be toned in a very weak toning bath, say 1 grain of gold to 10 ounces of water, made slightly alkaline.

THE ALBUMEN PROCESS.

By this process, very fine pictures may be made, perhaps even better than with collodio-chloride, but it is somewhat more troublesome. Proceed as follows: Take the whites of 4 fresh eggs, and 2 ounces of water, in which is dissolved 8 grains of chloride of strontia, and beat them up together to a stiff froth. They should be beaten until you can turn the dish upside down without the contents falling out. Set aside for several hours to settle. When you wish to use it, filter it through a clean piece of flannel, and coat the plates evenly with the albumen. Should it show a disposition to flow unevenly, breathe on the plate; this will give a layer of moisture, that will allow it to flow as desired; rear them up in a place free from dust, to dry. When you wish to print, sensitize them in the following bath:

Water, ...	8 ounces.
Nitrate of Silver, . .	240 grains.

Dissolve the silver in the water, and add 3 or 4 drops of glacial acetic acid, then add 8 ounces of alcohol. This gives a bath containing 16 ounces of solution, with 15 grains of silver to each ounce of solution. The large proportion of alcohol is added to coagulate the albumen, and more particularly to allow the plate to dry evenly and quickly. The plates should be dipped in a vertical bath, the same as for collodion negatives, but the solution should be filtered, and the bath washed out before each lot of plates are sensitized; when dry, they are ready to print. The only trouble to be apprehended in this process, is scum and dust-spots on the plate. They can be avoided, as I said above, by albumenizing away from any dust, and having the solution and bath perfectly clean when about to use them. They can be toned in the ordinary bath, but should have a very weak hypo bath, say 1 ounce of hypo to 16 of water, to remain from 5 to 10 minutes immersed in it according to the temperature.

I hope a fair trial will be given the above, and that the little extra trouble it gives to dissolve the silver, in the manner pointed out, will not be objected to. Should any of your numerous readers require any more information with regard to it, I shall be happy, though your Journal, to give it to them.

TINTED PHOTOGRAPHS.

Quite a number of inquiries have been made of us, of late, to know how to tint albumen prints. These inquiries were induced, first, by the fact that one or two parties, in Philadelphia and New York, were making quite a stir, and securing very pretty results by giving a tint, generally of a straw color, to their albumen prints; and second, by the fact that some enterprising person, one of whose letters is before us now, had written, or applied in person, to several of our eminent photographers, offering, "for the consideration of fifty dollars, to teach the process," which was held as a great secret, and only to be sold to the few leading artists.

Therefore, as it is our business to try to inform our readers of all that is new in the trade, we take pleasure in giving them a process by which the desired results may be secured. Mr. Bell has anticipated us somewhat, and handed us his process, which appears in another column, and, as we can testify from experiment, is also very useful in producing very pretty and varied tints. We hope this will reach you before your anxiety to make the "new style" coerces you into being gulled to the tune of "fifty dollars."

We must say, in the beginning, that both in our own and Mr. Bell's processes, the beauty of the results is dependent upon the taste and judgment of the manipulator, the same as in toning, &c., and the most desirable tints will be readily discovered by a little careful experiment. Again, the process is only applicable to vignettes or plain pictures with a white border. After they are tinted, the effect is greatly heightened by a skilful and tasteful touching up of the white draperies and high-lights in a picture, with white paint, which also requires taste and skill. Where there is lacework in the picture, the effect is very striking and pretty. And now to the process:

Almost any of the dyestuffs will produce effects as varied as the colors themselves, but, the most desirable, are a delicate straw-tint and a roseate or madder tint. Mr. Bell's process produces the former very readily, and they may also be produced as follows: make two solutions:

No. 1.

Madder, ...	100 grains.
Powdered Alum, . .	50 "
Water, ...	32 ounces.

Boil fifteen minutes, and strain, or filter through paper.

No. 2.

Bismarck Brown (aniline), .	8 grains.
Warm Water, . . .	32 ounces.

Diluted to suit the taste.

A concentrated solution may be made of each, and barely warmed, when about to use them.

Pass the prints through No. 1, wash, and then pass them through No. 2. The tints will vary according to the time they are allowed to remain in the solution. It is best to tint the prints as soon as they are taken from the wash-water, and before drying.

Another process produces very rich tints, viz.:

Garancine,	60 grains.
Alum (powdered),	30 "
Whiting,	10 "

Boil together ten or fifteen minutes, filter, and use warm, varying the immersion of the prints to suit your taste; the longer they are in the solution, of course, the deeper the tint. Still more rich and pleasing tints, to our taste, may be secured if trouble be no objection, by first treating them according to Mr. Bell's formula, and then passing them through the garancine solution. The same garancine may be used over and over again, and more color extracted by adding more water and boiling again. The solution may be used until all the color is taken up by the prints.

An endless number of tints may be produced by mixing or using, separately, the aniline colors of Dr. Jacobsen, advertised in our columns. Aniline blue, mixed with alcohol, diluted, say (if 95° alcohol is used), one-half water, also gives very pleasing results for the skies in landscapes, &c., and some like it for portraits. Tinctures of aurine, turmeric, and annoto, also give pretty tints, a drop or two of ammonia being usually added to create alkalinity. As we have said, an endless variety of tints may be secured by using varied colors, the aniline colors being the richest and best. The fugitive ones are secured by passing the prints through a slightly warm solution of boiled ground-coffee, strained and clear.

Garancine is the extract of the coloring matter of French madder, mixed with the carbonized residue resulting from the action of the oil of vitriol on the woody fibre and other constituents of madder. It may be had through your stockdealer, or, perhaps, of druggists or dealers in dyes. It is not expensive, and goes a great way, so large quantities need not be purchased at a time.

Some of the most beautiful examples we have seen of this kind, are from Messrs. Wenderoth, Taylor and Brown, Philadelphia; Mr. Taylor being the first to make them, we believe, but by no means the gentleman who offers to speculate on his discovery. Mr. William Kurtz, New York, makes them, and prints his plain pictures with a white border around, got in the usual way by pasting a mask on the negative, and then tints them. The effect is very rich and fine. Mr. Bell has also shown us some very fine ones, and is doing a good business in them. Mr. Gutekunst, of our city, is also making them large and largely. They are known here as "crayons" and "aux deux crayons."

"AUX DEUX CRAYONS," OR TINTED PHOTOGRAPHS.

The following will be found a durable process for securing the tinted pictures now becoming fashionable, and dubbed as above. Make two solutions, viz.:

No. 1.

Aloes, powdered,	1 ounce.
Alcohol,	12 ounces.

No. 2.

Water,	12 ounces.
Liq. Ammonia,	15 drops.

Immerse the albumen prints in solution No. 1, until they take a bright lemon color; then wash them well, and put them in solution No. 2. Let them remain until they take a warm orange color, and again wash them. Mount and touch up the whites with Chinese or any good white, and the blacks with India-ink. After touching up the whites and blacks, coat the pictures with the following:

Plain Collodion,	6 ounces.
Castor Oil,	12 drops.

The deeper the tint required, the longer the prints must remain in the aloes solution. Too long immersion in the ammonia solution will reduce the tint.

William Bell,
Photographer,
1200 Chestnut Street, Phila.

A Few Words about Silver Saving and "Bogus Patents."

BY VICTOR G. BLOEDE, CHEMIST.

"To discourage and oppose any unjust imposition which tends to hamper the progress of the art," says the second section of the first article of the Constitution of the National Photographic Association, shall be one of its main objects; and well may the photographers of the United States congratulate themselves upon the formation of this Union, even if its whole Constitution and object consisted of this one article. It has become more and more customary, of late years, to subject the photographers (who, as a general rule, do not enjoy the property of being "flush"), to all kinds of unjust and fraudulent claims, as having infringed this or that "bogus patent." I do not believe in making personal attacks upon any parties (as is customary in certain not distant quarters of our globe), or, by any article or statement, to attempt shortening the *legitimate and fair profits* of any individual, or to infringe or seek to deprive him of his claims to a really valuable invention. Yet, when counting upon the lack of knowledge of a certain class, individuals introduce "inventions" with a great flourish of trumpets—in which there is nothing new,—recommend them as the best thing known or in use, when they are absolutely without merit or value, say they will accomplish this or that, when they will do no such thing, charge a certain sum for the right of using, when they do not possess the right themselves, and, finally, put the stamp, "Patent" upon an entirely different arrangement than that set forth in the specification of their "patent claims," in open and flagrant violation of our Patent laws, then I believe the time has come to undeceive the profession, especially when these emboldened "patent men" begin to threaten the profession with "prosecution" for infringing a patent which never existed. Perhaps I would still have kept silent, holding on to the good old principle of "mind your own business," and "keep your fingers out of other's pies," had not the Photographic Union been formed, binding us together into a sort of brotherhood, and now, *as a member of this Association*, I feel it my duty to oppose such fraudulent claims and false representations. With this plea, I wish to begin a little talk about "Shaw's patent silver-saving apparatus."

Several circulars have been sent to the editor of this Journal, from subscribers who are charged by the owners of this sublime humbug with infringing on their "Patent." Besides these complaints, I have, myself, lately been asked questions upon the matter: First, my opinion upon the merits of the apparatus; secondly, about the legality of the "Patent," and, lastly, upon the charges for reduction. To all such questions, I now respond publicly, as follows:

First, the method of saving wastes in Shaw's apparatus is a most miserable, unscientific, impractical, and expensive one, and, even if good care be taken of the apparatus, it will not save one-half of all the silver passing into it. The reason why, hereafter.

Secondly, the apparatus described in Shaw's patent papers, is absolutely valueless, and it is only by modifying it into an entirely new apparatus, that he can at all make use of it. Consequently, the apparatus now put up in galleries is not the one specified in his papers, and, therefore, the "patent" is not only not worth the paper it is printed on, but Mr. Shaw renders himself liable to prosecution for putting the word "Patent" upon his apparatus.

Thirdly, the amount of commission charged is simple extortion.* No photographer should pay fifty per cent. for the reduction of his wastes. Twenty per cent. or twenty-five per cent. will pay the reducer *splendidly* on larger lots, and thirty-three per cent. *very amply* on smaller lots. I make this statement after a thorough examination of the apparatus, with the "Shaw specification" before me, and with a thorough knowledge of the reducing and refining business in all its details.

I will now give the reasons why the Shaw apparatus will not accomplish what is claimed for it. The practice of mixing all of the various liquid wastes, cannot be sufficiently condemned. The result of such a complex mixture of already complex solutions and substances, naturally will give rise to the formation of all kinds of unknown compounds and combinations of silver and other substances, which renders the thorough reduction of the silver, to say the least, very difficult and uncertain. The developer, which (all but the few drops of first drainings) is very poor in silver, is allowed to pass into the apparatus, and into this solution is, perhaps, poured a spoiled bath of pure nitrate of silver. This is about the same as if a miner added a handful of gold-dust to an amalgamating tub of very poor gold ore, because it was not quite as convenient for him to carry the pure metal around in his pocket. To this mixture of developer, is further added the cyanide and hyposulphite fixing baths, each of which should necessarily have a treatment peculiar to itself. Every photographer knows, that to make a porcelain picture he must work differently than when making a negative. And, until it is found out how to resolve every substance into one element, we will not be able to make the nitrate of silver, *either* by the mixture of nitric acid and metallic silver, *or* sulphuric acid and metallic iron, but we will have to stick to the former old and more expensive method. The *theory* in Shaw's apparatus is, that metallic zinc will precipitate the precious metals from all of their compounds. This is, however, not the case, and thus much of the silver will remain unreduced in the solution. Another great difficulty and disadvantage arising in the use of the apparatus, is the contamination of the precipitates with compounds of zinc. Zinc is one of the most troublesome metals known, when in combination with silver and gold, especially when (as is almost always the case), it contains arsenic. To remove the zinc, the mixture of metals must be subjected to a variety of chemical processes, each of which tends to create a large loss of the precious metals. Thus, it will be found, taking all in all, that the apparatus will not actually save fifty per cent. of the silver passing into it.

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* In our own article, we forgot to mention that the "Company" *reserve to themselves* the right to reduce all the washes saved by their apparatus. We are informed that they also reserve a large share of the savings, and thus reduce the profits of the photographer at the same time.—Ed. P. P.

I hope, soon, to publish an account of the best manner of saving the various wastes, which will cost the photographer but a trifle, and will save the silver in the most complete manner. In the meantime, do not be intimidated by Shaw or his agents; his apparatus is not legally patented, it is almost entirely worthless, and will not accomplish what is claimed for it. Do not have it put up unless you have already got it, for you can save your silver easier, cheaper, better, and more economically without than with it.

THE NATIONAL PHOTOGRAPHIC ASSOCIATION.

Our readers, and particularly those who have already become members, will be gratified to learn that the prospects of the new National Organization are most flattering.

The Executive Committee, whose circular will be found on another page, are vigorously at work making arrangements for the Exhibition in June, which will doubtless be, by far, the grandest photographic display ever made in this country. Not only is it expected that there will be an exhibition of examples of work, but of apparatus, accessories, chemicals, frames, and all useful inventions pertaining to the art. It is also hoped, to have a model studio and dark-room. No pains, whatever, will be spared to make it a most attractive and valuable exhibition, well worthy of a long journey to attend. We understand that no premiums will be offered this year. It is expected that there will be a large response to the call of the Committee from exhibitors, who will feel enough interest in the success of the matter to exhibit for the credit of American photography, without the hope of gaining a prize. In the judgment of the Committee, such a course will prevent any jealous feeling, and bring out a more liberal response. The arrangements will be announced fully in our next issue, we believe, and, meanwhile, study up what you will exhibit, and how you can arrange to be present at the grand meeting in Boston in June. Now, aside from the charm of the Exhibition, matters look cheerful. Some delay ensued in getting out the blanks, copies of the Constitution, &c., but now they are ready, in the hands of the Executive Committee, the members are increasing, and, in another month, we believe hundreds will be added to our members.

Any one can obtain a copy of the Constitution by applying to any member of the Executive Committee. In the back part will be found a blank form of application for membership. If you desire to become a member of the Association, fill up and sign that blank, and send it, with the initiation fee ($2 for a principal and $1 for an employé), to the one you received it from, and he will send you a receipt and certificate of membership. Then, on becoming a member yourself, endeavor to persuade others to go and do likewise. To aid you in this, you may obtain duplicate copies of the Constitution as directed above.

We have detailed the advantages of membership repeatedly, and they will also be understood by the Constitution and preamble. They are already beginning to develop themselves substantially.

In our present issue, a member of the Association, Mr. Bloede, warns his fellow members against a fraud which promises to become as annoying as the Bromide deception, if it is not resolutely fought at once. For this we owe him thanks, but he is merely doing what he pledges himself to do when he signs the Constitution. It is readily to be seen, that if each member will report to the Executive Committee anything he sees wrong, or having the appearance of wrong, the whole craft can be alarmed and protected from imposition. This must be an immense advantage, and will, no doubt, be fully appreciated and accepted by you all.

Letters have been received from the following gentlemen, who were elected vice-presidents or honorary members: Professors S. D. Tillman, John W. Draper, C. M. Cresson, M.D., Oliver Wendell Holmes, M.D., Messrs. Charles Wager Hull, Thomas Gaffield, H. T. Anthony, Samuel Holmes, J. C. Browne, Elwood Garrett, E. Decker, A. Hesler, J. J. Bardwell, D. H. Anderson, G. S. Cook, B. Carr, John A. Whipple, J. E. Whitney, W. Notman, C. R. Savage, and F. W. Hardy, all of whom join cordially in the purposes of the Association.

The following extracts will convey an idea of the spirit with which our principles are received:

"I do not wait for the receipt of the proceedings of your Convention—which I am sure will meet my approval—to thank you and your Society for the honor done me in electing me an honorary member, and express to them my intention of contributing a paper at some future time."—John W. Draper, University, N. Y. City.

"It will be my aim to co-operate in whatever way I can to advance the interests of the profession. I have been for many years identified with, and interested in, the success of those measures which the Society desires to see advanced, and if I can in any way aid towards their accomplishment, it will be my pleasure to do so."—Samuel Holmes, New York.

"I feel it an honor to be enrolled with a body of men representing so much science and skill, devoted to an art which I owe so much gratitude as the source of never-ending delight, and which I regard as one of the greatest triumphs of civilization."—Oliver Wendell Holmes, Boston.

"It will give me great pleasure to endeavor to administer my trust to the best interests of all concerned."—H. T. Anthony, New York.

"I am fully convinced your Association is a move in the right direction, and will ultimately lead to much good. I heartily wish it may be so, and the Association has my warmest sympathy." —W. Notman, Montreal.

"Come thou with us, and we will do thee good."

THE COFFEE DRY PLATE,

OR A PRACTICAL, RELIABLE, AND SATISFACTORY DRY PROCESS FOR OUTDOOR PHOTOGRAPHY.

BY PROF. JOHN TOWLER, M.D.

The dry process in question is the coffee process of Colonel Baratti, Milano, modified only in some of the practical details. I shall, therefore, proceed at once to a description of the whole operation of preparing the plate and developing the negative.

SUBSTRATUM OF IODIZED ALBUMEN.

The plates are, in the first place, thoroughly washed and cleaned with rottenstone, and again washed, and finally rinsed in filtered rain-water.

Why in *filtered* rain-water?

Because almost all sorts of water contain fine particles of dust (organic matter that has settled out of the air), and such particles are injurious to good working.

Examine each plate, when rinsed, to see that it is perfectly free from such particles; and, if free, it is ready for the coating of albumen.

Why do I use this coating of albumen?

Because the film of collodion never leaves the plate during development or fixing, when the glass has been previously coated with albumen.

But is not this thin layer of albumen injurious to the silver bath?

In all our experience we have not found it to be so.

The stock solution of albumen is formed as follows:

White of Egg, . . .	5 ounces.
Rain-water, . . .	5 "
Ammonia, . . .	50 minims.

Shake the mixture intimately together in a stoppered bottle, and keep for use.

ALBUMEN FOR PRESENT USE.

Stock Solution of Albumen, .	2 drachms.
Rain-water, ...	10 "
Iodide of Ammonium, . .	5 grains.

Dissolve the salt in the mixture, and filter the solution once or twice if necessary.

Why do you iodize the albumen?

Because we have often been annoyed with parts or points in the collodion film, that were insensitive to the action of light, and by using an *iodized* substratum, we have succeeded in overcoming this defect.

Whilst the glass plate is still quite wet from rinsing, pour over its surface the filtered iodized albumen. There is quite a knack in performing this operation properly, so as to avoid bubbles and inequalities. The operation is quick and easy, when once learned. Allow the plate to drain, and then rear it away to dry in a place where no dust can have access. When the plates have dried spontaneously, it is still an advantage to dry them over the flame of a spirit-lamp, the albumen film being upwards.

What is the advantage gained by drying the film of albumen over the flame of a spirit-lamp?

Moisture is apt to be retained under the film of albumen, even after spontaneous drying, in the form of numerous small circles arranged side by side; and these, if left, would spoil the negative. They can be removed by artificial drying.

BROMO-IODIZED COLLODION.

The collodion that we have lately been using for the dry process in question, is a mixture of the two following:

No. 1.

Alcohol, ...	5 ounces.
Ether, ...	5 "
Iodide of Ammonium, . .	50 grains.
Bromide of Potassium, . .	10 "
Pyroxyline, ...	50 "

No. 2.

Alcohol, ...	5 ounces.
Ether, ...	5 "
Iodide of Cadmium, . .	40 grains.
Bromide of Ammonium, . .	20 "
Pyroxyline, ...	50 "

The mixture keeps well and works well. It is bad policy to use an old collodion for dry plates. 20 grains of bromide of potassium, if previously dissolved in a minimum quantity of water, might be used with advantage instead of the 10 in the formula; in this case, 40 grains of iodide of ammonium will be sufficient. I think the collodion is always improved by adding a few drops of water to it, then shaking it well and filtering. I always filter through paper, and have arranged a filter for this special purpose. The collodion improves by age, that is, by keeping it a week or two.

SILVER BATH.

Distilled Water, . .	40 ounces.
Nitrate of Silver, . .	4 "
Acetic Acid, . . .	2 drachms.
Iodide of Silver, . .	4 grains.

Filter the solution invariably before you prepare a batch of dry plates; and *before* filtering, add 2 ounces of distilled water, and *after* filtering, add 2 drachms of nitrate of silver.

Why do you add water before filtering?

In order to remove all excess of iodide of silver that may accumulate as insoluble particles in the solution, for these would produce pin-holes in the film.

Why add nitrate of silver after filtering?

In order to keep up the bath in its normal strength. Coat the albumenized plates with collodion, and sensitize the films in the silver solutions in the usual way. As soon as the film has assumed a creamy color, take out the plate, let it drain, and then immerse it for a few minutes in a dish of distilled or rain-water.

Why not river or spring water?

Because such water generally contains either carbonates or sulphates, and sometimes chlorides, and these would produce insoluble particles on the film of collodion that might subsequently give rise to pinholes in the negative.

Wash the plate afterwards, especially the sensitized collodion film, under the tap thoroughly, in order to remove every trace of free nitrate of silver; let it drain.

(To be continued.)

PHOTOGRAPHIC SUMMARY.

BY M. CAREY LEA.

ENGLAND.

Treatment of Prints and Negatives.—Some Parisian prints have a sort of granularity, causing them to resemble reductions of engravings rather than photographs from life. The effect is said to be obtainable by taking a thin sheet of gelatine, giving it a very fine-grained surface by rubbing it carefully with the finger with fine sand, emery, or pumice, and interposing it between the negative and the print during exposure. Those who cannot get sheet gelatine, can make it by making a solution of gelatine (40 or 50 grains to ounce), and pouring it out upon a clean plate of sheet-tin (tinned iron plate).

A similar operation of graining, performed on the varnished surface of a negative, will cause it to take treatment with a lead-pencil, when, otherwise, the lead would not take on the glassy surface of the varnish. —*Br. Jour.*

GERMANY.

Blackening Brass Surfaces.—For restoring the black surface of the interior of lens tubes, when injured or broken away, Marowsky recommends a weak solution of shellac in alcohol, mixed with lampblack. Burckhardt dissolves sugar in brandy and mixes lampblack with it.—*Mittheilungen.*

[Gelatine will also answer, or gum water for holding the black on. Milk, which some have advised, does not work well; it is not sufficiently adhesive, the black comes off too easily. Whatever adhesive material is employed, just enough should be used to attach the lampblack, otherwise, a reflecting surface is produced, which is, of course, very objectionable.

I have used the following mixture with satisfactory results for blackening the insides of cameras or other wood-work, which was to reflect no light. Good powdered gum-arabic, 1 part, lampblack, 2 parts. Mix with warm water to a thin paste, and rub on with a flannel rag.]

Photographic Piracy.—Perhaps a worse case than the following has rarely happened: A German photographer (Moser), made a collection of several hundred stereo slides of German scenery from nature. Another photographer sent for a set "for examination," copied the whole, and offers them for sale! Such thefts should be made penal at law, and not merely subject for damages.

I cannot agree with my friend Mr. Guillou's view of the legal meaning of the word "author," nor believe that copyright is confined to written productions. It is correct to say "the author of a photograph." I have received photographs from abroad with "from the author" written upon them, and I believe the law, as it stands, to be, and to be intended to be, capable of covering designs, engravings, photographs, &c.

Glass for the Dark-Room.—As light yellow glass lets in a good deal of active light, and the red is very disagreeable to the eyes, Grüne advises to use two thicknesses of the light sort. Ernst recommends glass colored with silver (ordinary yellow glass is colored with copper).

FRANCE.

Negative Varnish.—Venois recommends:

Alcohol, . . .	10 fl. ounces.
Sandarac, . . .	1 ounce.
Benzoin, . . .	1 "
Elemi, ...	1 "

He had used it satisfactorily for ten years. Some heat is necessary.

[The above is given as a new formula

involving the use of benzoin and elemi, rarely employed hitherto in photographic varnishes. The amount of resins is evidently excessive, fully double the proportion of ordinary varnish, if not treble. On the paper being read, M. Davanne objected to the use of elemi, on account of its softening tendency.]

WRINKLES AND DODGES.

Mezzotints and Vignetting Stands.—I have made pictures by interposing a thin substance between the glass negative and the paper, for six or seven years. The patent apparatus for vignetting in the camera by the use of a piece of perforated cardboard, to raise and lower on a stand, I have, with a neighbor, used quite as long, and I find it very useful.—D. Sutphen.

I work my head-rest, so as not to show in the picture, as follows: I have a base-board with short feet at each end, so it may be placed anywhere without being fastened to the background. I then place it about fifteen inches from the background, and place the rest between them. I then have the rod to the ear-piece twenty-four inches long, and, in this way, I can place the figure as far as usual from the base-board, and entirely hide the head-rest from sight.—Thomas Barbour.

In *our* last Journal I notice some of the craft are at a loss to know how to avoid paper drying unevenly, or the spots or drops on the paper. I silver whole sheets of paper, and am never troubled with them unless the sheets touch each other. My mode of working is, to float the paper from one to two minutes, *then be very careful in raising it from the silver;* raise very slow and regular. The drops will all follow, or the most of them. A whole sheet of paper may be taken from the silver bath and hung up without a drop falling after being hung up, if you are careful. Try it.—Ralph F. Channell.

I have lately been successful in keeping sensitized paper white while fuming. Acting under the suggestion of one of your correspondents, that sulphuric acid is the only reliable agent for absorbing moisture from dry plates, I concluded to try it on paper, and am much delighted with it. I have given it a severe test: fumed for four or five minutes, and printed directly without first drying, and I believe it is more sensitive, and it certainly is more brilliant. I fumed some this morning for fifteen minutes, under the old rule, dried after fuming, and it is not so white as the prolonged fuming with the acid. This may not be new, but it certainly is not generally known, and I think is worth trying. I intend to give it a still severer test, and compare.—H. Noss.

As many photographers are in want of a *good* working collodion, I inclose the following, which cannot be beat. Use—

Ether (pure), . . .	3 ounces.
Alcohol (absolute), . .	5 "
Iodide of Lithium, . .	45 grains.
Iodide of Cadmium, . .	15 "
Bromide of Lithium, .	18 "
Bromide of Cadmium, .	20 "
Gun Cotton (Negative), .	50 "

First measure the alcohol, then add the bromides and iodides; shake until dissolved; then add the cotton, and allow it to steep for a short time, then add the ether, and set it away for one week, and it will be ready for use.—A. W. Gregory.

The Intensifying of Negatives.—Many of my colleagues, when making professional tours, practise the custom of simply developing their plates at the moment of their production, and postpone the operations of intensifying and fixing until they have more leisure to devote to the purpose. I, myself, have also practised this method of operating, but have always remarked that the film of precipitated silver formed upon negatives produced in this manner, is of a much coarser description than in those which are perfectly white in a moist condition. From such coarse-grained plates as these, it is, of course, impossible to obtain delicate prints, and I would, therefore, recommend that, whenever practicable, the process of intensifying should immediately succeed that of developing. When this is impossible, the negatives should be kept moist by constant pouring over of water.

G. Wharton Simpson.

SALAD

For the Photographer.

Do not let your chemicals freeze.

Dr. Borlinetto, of Padua, Italy, has issued a treatise on photography.

M. Schroder, of Hamburg, is constructing a telescope for photographing the heavens.

Nearly 2500 copies of 1869 *Mosaics* were sold in less than sixty days after publication. Only a few left.

William Oscar Reichard and Carl Shuenberg, Leipsic, have just published "A Manual of Microscopic Photography."

There is a movement under way to secure the passage of a new copyright law which will include photographic productions. Success to it.

Eight gold and six silver medals, besides thirteen honorable mentions, were distributed among fifty exhibitors at the late Photographic Exhibition in Havre.

A lady subscriber complaining of the carelessness of an assistant says: "When carefulness is not *ingrain*, teaching on the subject falls to the ground."

How to See a Landscape as it will be Depicted by Photography.—Wear a pair of spectacles with blue glasses, and the colors will appear to you as they do in a photograph.—*Br. Jour.*

Relief from the immediate annoyance of bad and dirty plates, when good ones are not at hand, may be had by rubbing them over with a small quantity of pure beeswax, dissolved in ether.

If blinds are occasionally wetted by a light jet of water, when the sun is upon them, it will be found that the thermometer will indicate from eight to twelve degrees less of heat beneath the under surface.

The *British Journal* says *Mosaics*, 1869, is "got up in nice, readable form, and the selection of articles made with care and judgment. The work cannot fail of being very useful indeed."

An enterprising stockdealer secures the blessings and patronage of his *best* customers, by presenting them with subscriptions to our Journal or some of our other publications. Good. He will succeed. He has ordered several lots of books, and a number of subscriptions this year already.

The Blessed Babies.—A shrewd and ingenious California subscriber, well knowing that by making a good picture of the baby, one secures the good will and patronage of the old folks, devotes the following to the little "sunbeams" and "blossoms" in his circular:

"Mothers who wish to have babies appear in white, ought to dress them in some light blue, pink, or solferino; nicely trimmed or embroidered. All *blue* or colors mixed with blue, are, photographically speaking, white, accordingly as the blue more or less predominates.

"As children are often troublesome, restless and hard to get a picture of, and as the artist does not wish to let bad work leave his rooms or be bothered with impossibilities, over which he has no control, he kindly requests mothers to bear in mind that babies ought to be brought to the gallery between the hours of 10 and 2 o'clock, the nearer 10 o'clock the better. The reasons for this are obvious.

"First. The child is not so cross, annoying and restless, and the mother is more in good humor in the forenoon, and hence the artist is more likely to get a good picture.

"Second. A photographer wishes to make money as well as other people, and don't like to bother with babies if the gallery is full of ladies and gentlemen who wish their pictures taken, and see no end to the baby-rattle and cry. Mothers, have reason, and have mercy for the poor artist's soul. (In no case shall babies be taken when adults are in waiting.)

"Third. The light is not so powerful at noon as in the morning. The actinic power of the sun's rays are stronger and more active from sunrise to noon, than from noon to sundown, and the strongest if the sun is in its zenith."

He also makes the following covenant with his patrons, one and all:

"I'll give you Pictures that are true,
And beautiful positions too,
A fine complexion clear and bright,
A pleasant smile and all is right."

VOICES FROM THE CRAFT.

"I HAVE been on the point of writing you for about a month, in regard to the Shaw patent, and obtained a circular for the purpose of inclosing it to you, but I see, by the last *Photographer*, that some one or more are in advance of me. I think it covers more ground than any patent I ever knew of. After reading the circular, the question naturally arises: 'Has a man a legal right to preserve his own property?'

"To my mind, the proposition of Mr. Shaw is simply this: 'Mr. Photographer, I have the extreme pleasure of informing you that I was the first to discover that you were allowing valuable property to run to waste, and that it could be restored and utilized. I have, therefore, patented the discovery, and I come now to the rescue, 'with my little dish,' which, by the authority of Letters-Patent, I hold under the waste-pipe in your laboratory, but, for the valuable service thus rendered, I claim the "lion's share." If you choose to hold it there yourself, it is all the same, you must pay tribute.'

"'Mother Hubbard' did not quite pick the poor photographer's bones, but, if this patent is allowed the force claimed for it, we shall certainly know 'who caught his blood *with his little dish.*'

"Truly yours,
"J. M. FOX.

"ROCHESTER, N. Y."

OUR PICTURE.

As promised some months ago, we are enabled to present our readers now with the picture to which the "$50 prize" was awarded. This prize, it will be remembered, was offered by us for the best two negatives and prints sent for competition, suitable for illustrating our Journal. About thirty photographers sent negatives for competition. Some were unaccompanied by prints, and were, therefore, decided ineligible to competition by the judges, and some were withdrawn, reducing the number to twenty-three or twenty-four. It was decided, by the gentlemen we selected to examine the examples sent, Messrs Coleman Sellers and Frederic Graff (both clever amateurs), that Mr. T. R. Burnham, of Boston, was entitled to the prize. A full report of their examination is given by Messrs. Sellers and Graff, in our last November issue. This report is exceedingly instructive and interesting, when compared with a set of the prints. All the competitors, and many others, have had this opportunity, as we have offered sets of the prints, twenty-three in number, nicely mounted, at about the cost of production ($3), in order that all who desired might have the advantages of such a practical lesson.

Our object in making the offer of a prize, was to stimulate the photographers of the country to honest and earnest effort to do their best, and produce something really fine. In this we were partly disappointed. The response was by no means as general as we thought our offer would bring out, and the average of those sent was below what we are accustomed to seeing every day. We cannot criticize more fairly, than by falling in with the opinions of the gentlemen who made the examination. With due respect to those who competed, we cannot refrain from saying that their pictures by no means do American photography full justice. The most of those sent evince the fact that those who made them *tried* to do well, but, leaving it until the last hour of probation—as a number confessed to have done, and which we particularly cautioned them *not* to do—failed. From a number of them we have since seen better work, and we have charity to believe that they can *all* do much better, and do it every day, but this time they worked too much in a hurry. Mr. Burnham's negatives were the *second* that came, and none after them, in the opinion of the judges, seemed to excel them. That he has done well, no one will dispute, and his picture is a fair example of first-class American work. We should be proud of it, compared with the average work of England, France, or Germany, so far as we know, and leave it with our amiable readers for further criticism. We have been unable to get a full and graphic description of his light, from Mr. Burnham, and, per consequence, we suppose he will be overwhelmed with questions from his co-workers, for further particulars as to his formula, light, &c., &c. Be merciful to him, we beg of you. We have a photograph of the interior of his studio before us. It is one of the roughest-looking places we have ever seen first-class work made in, and defies the art of our engraver to reproduce it. It is what is known in Boston as a *saddle* light, facing east and west, with an inclination to the south, and the side-light running to the floor. The height from the floor to the lower part of the top-light is 11 feet, and the room is 23 feet wide by 106 feet long.

The instrument used by Mr. Burnham was an extra whole-size, made by the Willard Manufacturing Company, New York. Its excellence cannot be overrated. A lens that will make such a picture is, indeed, a prize, and we know that there are a number of just such prizes in existence. Sharp, round, bold, splendid field, depth, illumination—all one could desire.

The prints were made in this city by Mr. F. Gutekunst, who is one of our most eminent photographers, though not a competitor for the prize. They are on his own manufacture of paper, which is excellent in every way, economical, and easily manipulated.

Thus endeth our first experience in offering prizes for examples of work. In our next we shall probably produce another competing picture from the negatives of Mr. J. H. Kent.

Parties desiring full sets (23) of the competing prints, can now obtain them by mail, prepaid, by remitting $3.

Mr. Gutekunst's paper is well and favorably known to many of our readers, and, as several of them inquired his formula for working it, we add it here:

SENSITIZING SOLUTION.

Nitrate of Silver (Magee's), .	2560 grains.
Water, ...	16 ounces.

Dissolve; convert four fluid ounces of the solution into ammonio-nitrate; mix again with the other, and very nearly neutralize the whole; then add water sufficient to make sixty-four ounces.

TONING BATH.

Chloride of Gold (Magee's), .	6 grains.
Common Table Salt, . .	2 drachms.
Water, ...	6 gallons.

Neutralize with bicarbonate of soda.

◆

Editor's Table.

"The Boyhood of Lincoln."—This is the title of the latest chromo from the presses of the enterprising chromo publishers, Messrs. L. Prang & Co., Boston, the largest in size of any they have published, we believe, and copied from Eastman Johnson's painting. Without speaking of its associations, except to say that they should thrill the heart of every American boy, and cheer every complaining and despondent youth, the picture is full of merit as a work of art. The scene is a Western backwoods' cabin; dark, and rude, and cheerless to all except those to whom such places are endeared by memories of early days. The point of attraction in the picture is a lad, clad in coarsest homespun, and roughest boots of cow-hide, seated, with his long legs outstretched, at an open fire-place, by the glorious glow from which he is studying his lessons. In point of art this same glow is the great charm of the picture. The artist, with the skill of Rembrandt, has so concentrated it upon the young student as to give brilliant and bright relief to his long, awkward figure. The effect is masterly, and one most difficult to attain. The boldness of the figure and the charm of the lighting are enhanced by the truthful effect of shadow given to the interior, barely lit sufficiently by the glow to give detail to the objects in it, prominent among which are the naked timbers, catching the light on their rough-hewn sides, as if vying with the homely figure beneath them. The management of the picture is much like that in the Rembrandt effects, described in our last issue, and is truly a charming study in itself.

Messrs. L. Prang & Co. are doing much to educate the art-taste of the American people—an end which all photographers may help to consummate by producing good pictures.

Mr. James Cremer, No. 18 South Eighth St., Philadelphia, has favored us with copies of four pages of "Maison Rustique, or The Countrie Farme," an old book translated from the French A.D. 1600. Two gentlemen were disputing as to the earliest time when tomatoes were spoken of in any work, one declaring that he had a book issued A.D. 1700, which contained the earliest mention of that useful vegetable. The other produced a copy of the "Maison Rustique," on pages 322 and 323 of which we find "Love Apples" and "Golden Apples" described, both descriptions answering for our common tomato, and those pages were forthwith multiplied by photography. The following we find on page 323:

"Within this small time there hath beene seene a plant somewhat like unto apples of Love, bearing a round fruit like unto an apple, divided upon the outside, as the melon is, with furrowes; in the beginning it is greene, but afterward, when it cometh to ripeness, it becometh somewhat golden and sometimes reddish. This plant is more pleasant to the sight than either to the taste or smell, because the fruit being eaten it provoketh loathing and vomiting."

Mr. Cremer has made excellent copies of these interesting pages, thus adding one more laurel to the wreath of photographic glory.

Mr. Geo. H. Fennemore has entered into copartnership with Mr. F. S. **Keeler**, S. E. corner Eighth and Market Streets, Philadelphia, where he has one of the finest lights in our city. Mr. Fennemore has no superior in our city as a careful, skilful and successful manipulator, as we have had ample opportunity to know. He is ever ready to communicate to his brethren in the art less skilled than he, which he proves by the excellent papers which he has contributed to our pages, always acceptable, practical, and useful. We hope to be enabled to give something from him monthly hereafter, and wish him the great success he deserves in his business.

Mr. Wm. Bell, a gentleman whose name is well known to many of our readers, has established himself at No. 1200 Chestnut Street, where he is doing a lucrative business. Mr. Bell is also one of our talented and promising young artists; knows his business perfectly, as his work evinces, and is also generous in his communications for the benefit of others. He has our best wishes always.

Mr. Wm. F. Osler is working his way up to photographic fame, at No. 1024 Chestnut Street, where he has a fine cosy place. He is an artistic colorist, as well as a good photographer, and we rejoice in his success.

The hope of Photography is in such young men as Messrs. Bell, Fennemore, and Osler. They are a worthy trio, and will never degrade our worthy art.

Mr. J. H. Bostwick, Bristol, Pa., has sent us a number of cartes with the "Rembrandt" lighting, which are very fine in effect, and rich and pleasing in tone. Some of them are very beautiful and highly artistic.

The Perseverance Hose Co., of this city, are the happy possessors of a gorgeous frame containing forty whole-size portraits of the members of "Eagle Hose Co., No. 2," Buffalo, N. Y., which was presented to them by the latter in return for courtesies received by "No. 2" during a visit to our city. The photographs were made by Mr. W. M. Knight, 256 Main Street, Buffalo, N. Y., and are a credit to him without doubt. They are evidently the work of a skilled artist, and emphatically examples of good photography. We rarely see *so many* portraits together so uniformly well taken in every respect. They must give great pleasure to the members of the excellent Company possessing them.

Messrs. J. Gurney & Son, New York, are erecting a new photographic establishment at the corner of Sixteenth Street and Fifth Avenue, which they are endeavoring to make the model studio of the country in all its appointments. They will occupy it April 1st, 1869. We look for something commensurate with the elegant work now produced at their present studios.

The Fifty Dollar Prize Pictures have been sent to fill all the orders received by us up to January 21st. If any have not arrived at their destination, we would be glad to know the fact. As the printing of them was much delayed by the weather, we could only send a few sets at a time, taking the orders in turn. At this writing all orders are filled, and a few sets printed ahead awaiting further orders. Over one hundred sets have already been demanded. Those who have them will find it instructive to compare them with the remarks of the Judges in their report.

To "C. K."—One ounce.

From Mr. J. A. Palmer, Savannah, Ga., we have received a series of views of "Bonaventure," an enchanting and mystifying grove and cemetery near that city, and well known as a place of great resort. The remarkable foliage there is indescribable and peculiar. Mr. Palmer's views are exceedingly interesting and excellent for such subjects.

Mr. **Vernon Royle**, Paterson, New Jersey, has sent us six stereographs of Passaic Falls, &c., which are fully equal to any amateur work it has been our pleasure ever to see. They are perfect, in every way, as specimens of first-class photography, and we could make no suggestion for their improvement.

We will be glad to receive proposals and examples of landscape views for a future issue of our Journal. Must be first class.

The Tea Dry Process.—Mr. H. J. Newton has sent us, through Scovill Manufacturing Company, some very fine prints on "Pearl Paper," from negatives made by the *Tea* Dry Process. They are very delicate and soft, yet full of brilliancy and beauty.

Received, through Mr. G. R. **Angell**, Detroit, Mich., from Mr. Wellington Watson, at Grelling's gallery, several cabinet and carte photographs, which display a great deal of taste and skill in posing and lighting, and carefulness in the general manipulations. They are really fine examples of photography, but not faultless. Under-exposure of the negative seems to be their chief fault. In some, the retouching of the negative has entirely destroyed the middle tints, while in others the retouching has added much to their beauty. They are all ahead of the former efforts of Mr. Watson, and we are glad to see him improving.

Mr. G. C. **Robinson**, Haverhill, Mass., has favored us with some very pretty clouded vignettes. To get these clouds, instead of using cotton he double prints from a natural cloud negative. He has *not* patented the idea and claimed all other devices for producing the same result.

From Messrs. **Williams & McDonald**, Denver, Colorado, we have fifteen very interesting stereographs of the wondrous scenery in the Rocky Mountains. They are the best we have ever seen of that section of the country, as grandly wild and beautiful as the Alps, and a fine field for the camera. These gentlemen have, by great care and perseverance, secured an extensive series of Rocky Mountain views, which will, no doubt, find a large sale.

Thanks to Mr. E. **Harvey**, Minneapolis, Minn., for views of Minnehaha and St. Anthony's Falls, recently, and well taken; the former when the "laughing water" was unusually boisterous and demonstrative.

Mr. H. **Noss**, New Brighton, Pennsylvania, has sent us some very creditable examples of his work, and we are glad to know that his motto is, Up, *up!* UP!!

Mr. **Louis Alman**, Lake Mahopac, New York, has sent us a number of interesting, and some very beautiful stereographs of scenery in the delightful region he lives in. We first have views of the charming lake, with all the placidity and quiet of a summer afternoon, in strong contrast with others of the same lake frozen over with thickest and clearest ice, and the busy ice-gatherers at work cutting, and floating, and hauling their winter stores. The reflections, in the water, in these ice-views, are very pretty.

Mr. Alman accompanies the above by two large views of buildings and surrounding foliage, nicely colored, and then "enamelled" with collodion, which secures a very striking, and to some, pleasing effect.

Mr. F. G. **Weller**, Littleton, N. H., has also sent us a variety of winter and summer views of the White Mountains and vicinity, which are excellent. The choice of view has been managed by one having an artistic eye, very evidently, in most cases.

Mr. W. J. **Land**, Columbus, Ga., has sent us several gems of views near that city, which are excellent in every way. The tone is very rich and agreeable.

We have some very creditable cabinet pictures from Mr. D. R. **Clark**, Lafayette, Ind. The management of the subject is good, and everything nice, except that richer and more vigorous prints could be obtained from the same negatives.

Messrs. **Kilburn Brothers**, Littleton, N. H., have again favored us with a series of stereoscopic views from new White Mountain negatives, which are fully up to their high standard. No. 348, looking up the Mt. Washington Railroad, is a gem.

Just as we are going to press we learn, with extreme regret, that one of our valued subscribers, Mr. S. A. **Cohner**, was killed during a disturbance at Havana, on the 25th instant, by the Spanish volunteers. He was a genial gentleman, a thorough artist, and his sad death will be mourned by many.

J. H. KENT, ROCHESTER, N. Y.

Boston Public Library.

THE

Philadelphia Photographer.

Vol. VI. MARCH, 1869. No. 63.

Entered, according to Act of Congress, in the year 1869,
By BENERMAN & WILSON,
In the Clerk's office of the District Court of the United States for the Eastern District of Pennsylvania.

THE NATIONAL EXHIBITION.

RULES AND REGULATIONS BY THE EXECUTIVE COMMITTEE.

The Executive Committee of the *National Photographic Association* of the United States announce, that in connection with the first annual meeting of the Association, to be held in Boston, beginning the first Tuesday in June, 1869, there will be an *Exhibition* of the productions of photography in all its varied branches, and also of instruments, apparatus, accessories, chemicals, and materials of all kinds in any way connected with, useful or necessary in, the art.

They offer space for their display, to photographers of this and foreign countries, to manufacturers of all articles pertaining to the art, to inventors for working models of all apparatus useful to the trade, and for all proper things of interest and value in the manipulations and mechanics of the art of photography.

Foreign artists and manufacturers who desire to exhibit will please to forward their articles at least six weeks before the time of exhibition, in order that ample time may be given the committee to pass them through the Custom House.

All goods sent from abroad will be returned at the close of the exhibition, or effort made to sell them if preferred by the exhibitors, and the committee be so instructed.

In all cases, foreign exhibitors will please send duplicate invoices to the *local* secretary, and address all parcels to him.

Foreign exhibitors desiring to correspond on the matter of the exhibition will please address the *general* secretary, Edward L. Wilson, Philadelphia.

No charge made for space or repacking.

RULES OF THE EXHIBITION.

The Exhibition will open June 1st, 1869. All applications for space must be sent to the Local Secretary before April 20th, 1869.

Articles for exhibition must be sent *freight prepaid*, addressed, "National Photographic Exhibition, care G. H. Loomis, Boston, Massachusetts," between 1st and 20th of May. None received after the latter date.

A List of Articles should accompany each package, and a duplicate list be sent per mail to the Local Secretary.

All pictures, except those from foreign countries, should be framed. With foreign exhibitors it is optional. Exhibitors should put their names on their pictures.

Exhibitors, wishing to dispose of their productions, will send full particulars, together with their list, to the Secretary.

All articles sent will be submitted to a jury for admission.

No articles shall be withdrawn until the close of the exhibition.

Articles sent will be unboxed, placed, and re-boxed without expense to exhibitors.

All applications for space must specify the class of articles and the amount and kind of space required, and be addressed to

G. H. Loomis,
Local Secretary,
No. 7 Tremont Row,
Boston, Mass.

By order of the Executive Committee.

ON OUT-DOOR PHOTOGRAPHY.

BY GEORGE WASHINGTON WILSON.

I.

Although aware that there is nothing peculiar in my mode of working, seeing that I use the same wet-collodion process for my stereoscopic negatives, which I did seven years ago, and which all the world uses now, still, as you appear to think that it might be of interest to some, I have put my formula into shape, and you can publish it, or not, as you please.

I am sorry that I have been so dilatory in responding to your suggestion, but I have been in bad health for some time back, and not fit for anything. My notes, I fear, are rather bald in consequence, but I hope, by-and-by, to send some further details.

In the meantime, these are the materials and outfit which I use when on photographic pleasures bent:

BATH.

I use the ordinary 30-grain bath of nitrate of silver, without anything added to it, except about 4 grains of iodide of potassium to every 16 ounces.

COLLODION.

As I never could make it to please myself, I always buy it from some respectable maker, and principally from Messrs. Mawson & Swan, of New Castle, from whom I get it very uniform in quality.

GLASS.

Chance's best patent-plate, as I find, that in the long run, it is cheaper to have first-quality glass. It is free from scratches and air-bubbles, and I pay something extra to have it packed with a piece of paper between each plate, to prevent the surfaces being scratched during transit.

DEVELOPER.

Glacial Acetic Acid, . . .	1 ounce.
Water, ...	16 ounces.
Protosulphate of Iron, .	15 to 30 grains to the ounce of solution.

The proportions require to be varied so much, according to circumstances, that it is impossible to give them exact. Indeed, I never measure them except by rule of thumb. With a little practice, one soon learns to regulate the strength of the iron and acid to suit the work in hand. In warm weather I dilute the developer immediately before using it, and, consequently, can carry in one bottle as much as when diluted would make two.

TENT.

A very light tripod covered with two thicknesses of black calico, and one inner one of yellow. The calico is about twelve inches longer than the tripod, and, when the legs are extended, I place a few stones upon this extra cloth, all around the inside of the tent to steady it and keep out light. The cloth is also wider than required to cover the extended tripod, and, when I sit down inside, either upon my plate-box or on my heels, my assistant brings the cloth around me, overlaps it at one side, and keeps it there during development, &c. I find this tent the handiest for most subjects that ever I tried. When not in use, the cloth is folded round the tripod, and the tent is then placed inside the camera tripod, and fixed with one leather strap and buckle. These, the tent and camera tripod, form one parcel of about ten pounds weight, which I have often carried in my hand two or three miles at a stretch. The only kind of work which I find this tent unsuited for, is street work. It is often difficult to get a quiet corner free from dust, or *idle men and boys*, where it can be set up, and, although I have used it always in doing my street views, yet it was at great discomfort. For country work, however, there can be nothing better or more easily set up, and, if one takes care to dampen it inside occasionally, I believe negatives more free from pin-holes can be done in it than in any developing-box, and it is twice as portable.

CAMERA.

I have latterly used a sliding, bellows-body camera, which takes plates 7 x 4¾, with two sliding fronts: one for single lenses when taking negatives the full size of the plate, and one for a pair of stereoscopic lenses, the flanges of the latter made to fit half a dozen different-sized lenses, by means of which are fitted on all the lenses except the largest pair. The box closes up to 2½ inches and draws out to 8½, and it can be turned on end when taking upright views. It has, also, a removable centre division, which can be taken out when full-sized plates are used.

LENSES.

With the camera I use, for full-sized plates, a triplet of about 8-inch focus, a pair of view lenses, single meniscus, 8-inch focus, one pair 6-inch, one pair 4½-inch, one pair doublets 3½-inch, and one pair doublets, 2½-inch. These, I carry in leather cases, slung on a leather belt, worn over the shoulders like a shot-belt.

CHEMICALS.

All my chemicals are put up in 16-ounce bottles, and packed in baskets made for the purpose: a large one for carrying a stock, and a small one for holding sufficient for a day's work. The latter, when filled, contains three 16-ounce bottles of sensitizing bath; one of developer; the glass-bath and dipper in a wooden case; eight 2-ounce bottles of collodion; three 2-ounce bottles of glacial acetic acid; one 6-ounce bottle of cyanide solution; one dropping bottle; one 6-ounce bottle of crystals of sulphate of iron; one 2-ounce bottle of crystals of cyanide; a small glass funnel, one gutta-percha funnel, a plate-holder, a small portfolio holding filtering paper, a dusting-brush, chamois leather, and two towels. All these, although they take long to describe, go into a handy basket, which my assistant easily straps on his back, and balances by the camera in front of him. So that, when we start to the field or mountain, I have the tent and camera stand in one hand, my plate-box, containing 24 plates, in the other, with the lenses, in their cases, over my shoulder, whilst my assistant carries the chemicals on his back, balanced by the camera and two tin cans, one within the other, in one hand. When we arrive at a point where we intend to work, I immediately unstrap the tent, and set it up whilst my assistant collects a few stones to keep it steady; and, whilst I am arranging my bath and chemicals in the tent, my assistant runs to fill his cans with water at the nearest source. By the time he returns I am ready to coat a plate, which I always do inside the tent, and, as the plate is getting ready, I place my camera ready to receive it.

If it is a subject we are attempting which can be taken instantaneously, I use my six-inch focus lenses with a five-eighth inch stop, and expose by removing and replacing the cap of the lens as quickly as possible; but if it is a subject requiring a long exposure, I make a guess for the first plate, and, from long habit, generally succeed in hitting it pretty exactly.

Some days when, owing to the variation of the intensity of the light on the amount of shadow in the views, I have begun in the morning with an exposure of ten seconds, I have ended in the afternoon with one of three minutes, without losing a plate from either over or under exposure during the day. In spring the actinic property of light appears to be very active, and it is only then that I have succeeded in getting passable instantaneous pictures. Early in the season, views of buildings may be taken with a small stop, in from two to ten seconds, and landscapes, with trees, in from five to fifteen seconds; but by the month of August and September, I find from thirty to sixty-six seconds are required for most landscape views, and instantaneous exposures are of no use except for clouds and water only.

The plate being exposed, I get myself shut up in the tent, and develop in the usual way, by dashing on the solution as quickly as possible, and moving about the plate to prevent stains. If it is an instantaneous view, all the details should come up slowly and distinctly; but I keep on moving the plate for two or three minutes, so as to get all that I can up before washing off the developer. This I do carefully and slowly, and as the negative, in this stage, is very thin in deposit, I pour from my dropping-bottle a small stream of nitrate of silver along the side of the plate, and let it flow over the whole surface, before dashing on a fresh dose of developing solution, keeping the plate moving as usual. When this has acted for a minute or so, I wash it off again very carefully, and repeat the process, sometimes three or four times, if necessary, until the requisite printing density is attained; then after a slight washing, I bring it outside the tent, wash thoroughly, and fix with cyanide of potassium.

If the plate has had a long exposure, with a small stop, I find one re-development generally enough, but if my plate looks too thin after fixing, I sometimes take it into the tent and re-develop a second time. The cyanide, however, must be well washed off, otherwise there is danger of getting a reddish deposit upon the shadows.

Varnishing the negative I consider one of the most troublesome and delicate duties. The varnish must be filtered and kept free from dust, and, as with my collodion, I keep a few two-ounce bottles full, and only coat a few plates from each bottle. When one of these two-ounce bottles of varnish begins to show signs of being in the least contaminated with dust, I pour it into the stock-bottle for refiltration, and take a fresh one. After the first coating, which dries flat, or with a dull surface, I go over the negatives and touch up any small blemishes or pin-holes, and finish them with a second coating, which fixes in the touches of colors, and dries with a glossy surface. When the negatives are cleaned on the back, with a rag and some spirits of wine, they are ready for the printer.

I am not aware that there is anything peculiar in my printing operations, but I may mention, that I use what some people consider a weak bath: twenty-five to thirty-five grains of nitrate of silver to the ounce of water, and the solution made neutral with a few drops of ammonia. After the prints are fixed in hyposulphite of soda, they are put up in bundles of about fifty, and subjected to the pressure of a machine acting on the principle of a screw-press, which squeezes most of the liquid out of them. They are then washed by throwing them separately from one dish of clean water into another, several times, and again subjected to pressure; and I believe that, after a few repetitions of this proccess, they are as free from hyposulphite of soda as it is possible for prints to be, but I generally allow them to swell in porcelain dishes, with syphons, which empty and fill mechanically all night.

My prints are usually mounted with fresh gelatine, but when used for illustrating books, where thin mounts are necessary, I use India-rubber solution to prevent cockling. The India-rubber is spread over the backs of the prints quickly, by means of a hog's-hair brush, and also over the part of the mount which the prints are intended to cover, care being taken that no part is left uncoated.

When both are dry, the prints are laid on the mount, and slightly rubbed down by hand, which causes them to adhere partially; then passed through the rolling-press, which causes them to adhere firmly. Any rubber solution on the mount, beyond the margin of the picture, requires to be brushed off with an ink-eraser before rolling; and unless the paper is very spongy, it comes off easily, without leaving any marks; when the spots and blemishes have been stopped out with lampblack, or any other suitable color, the prints are ready for the market.

Aberdeen, January 9th, 1869.

OUR PREMIUMS.

The last two months, to us, have been joyous and busy ones. Joyous, because we have daily received a number of genial letters full of goodwill and good wishes (green), backed up by *substantial* evidences of their genuineness, and a busy one because we have had to acknowledge the favors of our old friends—hosts and hundreds of them—who have renewed their subscriptions to our Journal for another year, and very many new ones that have accompanied the old names.

One of the greatest pleasures we have had has been in responding to the demand upon us for *premiums* for *new* subscribers. Hundreds of busy and benefited brains have lately eagerly studied the contents of the elegant new books we have sent, for the good service done us in securing us *new* subscribers. As these premiums are only offered to our subscribers—an advantage exclusively reserved for those who have the other advantages of being our subscribers—we think a repetition of them here would bring still further responses and thus benefit all around. There has been a little misunderstanding, too, of our offers, and we desire to explain, that a person who has never taken our Journal cannot receive a premium on his own subscription. *After he becomes a subscriber*, or, if he sends another *new* subscriber in addition to his own, *then* he is entitled to a choice of premiums.

Our list, as we have now modified it, is as follows: Any subscriber sending us another for a year, who did not subscribe in 1868, will receive one dollar's worth of any of our publications, or any article in the trade of like value.

For 2 new subscribers for a year, double the above.
" 3 " " triple "
" 4 " " four times "
" 5 " " his own Journal free, or an extra copy to any address, or $5 worth of books or merchandise.

Our publications are: "Photographic Mosaics," 1866, 1867, 1868, and 1869; cloth, $1; paper, 50 cents. "Newman's Manual of Harmonious Coloring;" paper, 75 cents; cloth, $1. "Leaf Prints, or Glimpses at Photography," $1.25. "Lea's Manual of Photography;" cloth, $3. "How to Paint Photographs in Water Colors;" cloth, $1.25. And we also include "The American Carbon Manual;" cloth, $2. We also offer, specially, Wilson's celebrated Scotch stereographs, $4.50 per dozen; Braun's elegant carbon views, reduced to $2 and $4, and, where it is preferred, will send any article advertised in our columns, as premiums for their equivalent in new subscribers.

Every reader can talk to a co-worker or write him a letter. Mr. E. Kilburn writes: "Find $5 inclosed for a new subscriber I got you while riding in the cars." Mr. E. M. Van Aken writes: "Mr. Parsons is a good fellow, and has never been *blessed* with your Journal; I wrote him of its value, and gave him a word of advice about it. Result, $5 inclosed, for which send him your Journal a year. Among other things, I told him he would never have occasion to regret taking it. I consider myself safe in giving him that assurance."

The above are only to show how easily our list can be doubled, and you and your neighbor, and us benefited, if you will try with those we cannot reach.

One word more. Will our friends please remit by P.O. order or draft, to order of Edward L. Wilson, and avoid sending money if they can. P.O. orders are the safest and surest for all. Please try. Canada subscribers should register their letters. We will send circulars and sample copies to all who desire.

PRACTICAL NOTES ON VARIOUS PHOTOGRAPHIC SUBJECTS.

BY G. WHARTON SIMPSON, M.A.

Washed Wet Plates.—I have recently been trying further the method of using washed wet-collodion plates, to which Mr. Hughes has given fresh importance, by working it out successfully, and pointing out its peculiar advantages. As I mentioned some time ago, the idea is not new; it has been suggested more than once, and occasionally tried with success; but there are special conditions necessary to the production of certain and uniform results. Its advantages, under many circumstances, are sufficiently obvious: it aids in securing even development in large plates, when, from long exposure, or other delays between exciting and development, accumulated drainings, or uneven and partial drying, there is great risk of stains and uneven development; it prevents the matt silver stains of various kinds, which arise from the preceding and other causes; and it permits a plate to be kept for a few hours before development, providing proper steps (such as the placing of a pad of wet bibulous paper at the back of the plate) are taken to keep the plate moist. The occasional necessity of taking a wet plate to a distance, for exposure, and bringing it home for development, and the occasional necessity for an exposure of an hour or two, when taking dark interiors, render the facility for keeping a wet plate in good condition, of very great value. In very hot weather Mr. Hughes finds it worth while to work the process in the regular operations of the portrait studio.

In some instances difficulties have been experienced in succeeding satisfactorily, and such difficulties having been brought under my attention, a little examination and experiment have been necessary to ascertain the cause and remedy.

The first difficulty was insensitiveness of the plate, and uneven development from a cause before pointed out, namely, insufficient re-immersion in the nitrate bath. If the plate be simply re-dipped in the nitrate bath, for a few seconds, it develops slowly, irregularly, and imperfectly. It should be left in the nitrate bath in the second immersion, after exposure, about a minute, so as to be thoroughly and evenly permeated again by the nitrate solution. It will then be found to develop as perfectly as a plate which has not been washed. In my first experiments I tried the effect of pouring a little of the nitrate solution over the film, and, after draining, applied the iron developer. The result was altogether unsatisfactory ; the development was slow and irregular, and the plate appeared under-exposed. Another plate was tried with a few drops of silver solution mixed with the developer. This gave even development, but the plate again appeared under-exposed. Re-dipping in the nitrate bath, and allowing the plate to remain a minute immersed, as directed by Mr. Hughes, gave perfect results, and produced an even and fully-exposed negative.

Another difficulty was fogging, chiefly arising from one cause, but, possibly, occasionally also from other causes. The chief cause is the use of impure distilled water; a prolific cause of many photographic troubles besides that under notice. I presume that American photographers possess no immunity from the troubles of English photographers, in this respect, and that they occasionally meet with distilled water heavily charged with organic matter, possibly from being distilled in the same apparatus used for the distillation of essential oils, possibly from contact with the luting used in connecting the worm with the still, or from other causes. I recently tried some of a very old stock of distilled water, for washing sensitive plates, and produced universal fog. On examining the water, it manifestly contained organic matter in a decomposed state, which was very manifest on bringing the nose in close contact with it. A dose of permanganate of potash also gave abundant evidence; but after treatment with the permanganate, it answered perfectly.

The recently detailed evidence, on the washing of dry plates, of Mr. Russell Manners Gordon, one of our most skilful and trustworthy amateurs, suggests another possible cause of fogging in washed wet plates. Mr. Gordon has observed, that if excited plates, especially those coated with a collodion containing much bromide, be kept in the nitrate bath until the whole of the bromide and iodide be converted into salts of silver, a comparatively short washing is sufficient; but if any of the bromide and iodide remain in the film unconverted, then a long washing is necessary. If the plate receive only a short washing, under such circumstances, it is less sensitive than it should be, the traces of alkaline, bromide, and iodide, remaining unwashed from the film, acting as a retarder, as might be expected. But if the plate be very thoroughly washed—a soaking of some hours being, at times, recommended—so as to secure the perfect removal of all the unconverted haloids, then the highest sensitivevess is attained. I think that some important considerations in regard to the treatment of wet-plates arise here. We know that if the wet-plate remain too long in the bath, increased sensitiveness is often gained, but, at the same time, a tendency to flatness, weakness, and fog, is found present; a moderately short immersion in the nitrate bath tending to brilliancy. The presence, or absence, of a trace of unconverted iodide and bromide, doubtless, materially affects the character of the wet-collodion negative. And if the washed wet-plate be soaked sufficiently long to remove all trace of the unconverted iodide and bromide from the film, we shall probably have a tendency to fog, unless due precautions be taken, and these precautions will probably be best found in the use of an organic iron developer.

One other possible source of trouble deserves naming as briefly as possible, and it refers to the washing of dry plates as well as wet. It was recently pointed out by Mr. Sebastian Davis, another of our accomplished amateurs, as a common cause of pinholes in dry plates. It is not uncommon, in washing with distilled water, to pour it from a jug, holding the plate, of course, in a horizontal position. The result is, that the free nitrate of silver, on the plate, being much diluted, a precipitate of the iodide of silver, held in solution, is thrown down. If the collodion be of the spongy kind, these particles of iodide of silver cling to the surface, and cause insensitive spots or pinholes. The remedy is very obvious: a dipping-bath of distilled water—not a horizontal dish—should always be used, so that the precipitate formed shall not be deposited on the film.

This "note" has, I fear, extended to an article; but I think that the subject is of sufficient importance to deserve even more consideration.

Plain Paper Prints.—There is a disposition on the part of some of our best professional photographers to reconsider the advantages of plain paper over albumenized paper, for prints, especially for those of large size. The superior effect, in an artistic point of view, of a matt surface, is generally admitted by persons of cultivated taste; but the finer definition, and greater brilliancy obtained on albumenized paper, and the manifest advantage of these qualities in small pictures, like card-portraits, have been too tempting, and albumenized paper has acquired a hold upon the affections, or at least upon the habits of photographers, which will not be easily overcome. A crusade against albumen, on the ground of its vulgar effect, and still more on the alleged ground that it is a fertile cause of fading in photographic prints, has more than once been attempted without much success. Into the discussion, recently revived, my friend, M. de Constant, of Lausanne, has entered, making a vigorous assault on albumen, on the ground that it is a cause of instability. In the proper spirit of a reformer, he does not attempt to pull down one theory without being prepared with something which he conceives to be better, to take its place. He has tested plain paper prints, carefully, for many years, and where a high surface, together with transparency and depth, are required, he treats the finished, plain paper print, with a varnish. Some of his prints, so treated, have been kept for twelve years without showing change or decay. He has recently favored me with many examples* which will compare very favorably with albumenized prints, in all respects. Some of them it would be difficult to distinguish from albumenized prints; the surface is quite as glossy, but, in my estimation, of better texture. I prefer the effect of those left matt, at least for many subjects. The prints are delicate, vigorous, and of fine tone. His method of proceeding is stated, by himself, as follows:

"Choose a good stout arrowroot paper for the purpose; employ a neutral silver bath of eight per cent. strength, and when the paper has been sensitized and well dried, subject it to the action of ammonia vapor for ten minutes or a quarter of an hour; print very deeply, and tone with an old alkaline gold bath, somewhat weak, for it acts very rapidly, and the prints are easily overtoned; the hyposulphite solution may also be rather dilute, as the image, being upon the surface of the paper, is rapidly fixed. When the prints have been washed and dried, coat them with a tepid solution of gelatine of seven or eight per cent. strength, applied by means of a soft brush. Finally, varnish them with a very fine brush, from which the hairs are not likely to become detached. The varnish which I have found most suitable for this operation, is that of M. Sœhnee, of Paris, which I mix in the proportion of three parts of the positive varnish to one part of the negative. The last operation must be performed lightly and carefully, to prevent the formation of air-bubbles; it increases the brilliancy of the photograph, which may be modified at will, and contributes much to the permanence of the print. It is perfectly astonishing to how great an extent this process may be substituted for that of albumen, and how useful it is for producing prints of hard negatives, wrinkled faces, and landscapes with strong contrasts."

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* Some of these examples sent us by Mr. Simpson are very pretty, though hardly, we think, as good as albumen prints, yet much resembling them.—Ed. P. P.

A process of plain paper printing, which was at one time the subject of much interest in this country, because of the beauty of the results, is worth the attention of portraitists. It was then a secret, and Hennah's prints were, at the time, some eight or ten years ago, regarded as the *ne plus ultra* of photographic printing: the purity of the whites, with a play of delicate half-tones, giving a pearly effect; the rich, deep velvety quality of the blacks, as far from the blue or gray-black of some plain paper prints, as from the dull-brown of others; the combination of delicacy, modelling, and force, and, added to these qualities, the plain, quiet, matt surface of the paper, free from the obtrusive and vulgar glare of albumenized prints, and closely resembling the texture of a mezzotint engraving,—all these qualities were at one time the subject of general admiration, and a knowledge of the secret by which such results were produced was coveted by all. So far as the prevalence of testimony goes, there is every reason to believe that these prints were permanent. I have heard of many of these remaining perfect for a dozen years, and we have met with none which have faded. About four years ago this much-desired method of printing was courteously given in detail to the members of the Photographic Society, by Mr. Hennah, who had originated the process by careful experiment. I question very much, however, whether half a dozen persons have tried it. When it was published the card mania was in the full tide of its popularity, and albumenized paper was a necessity for card pictures.

When it was published it was also found that the process differed in several points, very essentially from other plain paper processes. Gold was employed in the salting solution, and the print, when it came from the printing-frame, consisted of reduced gold and silver, and was practically a toned print. It is worth glancing for a moment at the reactions which took place, differing from those in the ordinary printing operations. In the processes in common use, in which chlorides of ammonium, sodium, etc., are employed in salting the paper, the decompositions are simple enough, and are commonly well understood. The chloride of—say—ammonium decomposes the nitrate of silver solution, forming chloride of silver and nitrate of ammonia, the latter being neutral, or comparatively so, in the subsequent operations. But when a paper salted with chloride of gold is brought into contact with the nitrate of silver solution, the reactions are somewhat different. Chloride of silver is, of course, formed; but nitric acid, instead of combining with the gold, is set at liberty, or rather combines with the ammonia in the bath. Nitrate of gold is a salt not easily formed; and the gold left by the chloride, instead of forming a nitrate, is oxidized, and the auric oxide remains in the paper in a state very ready to be reduced. When exposed under the negative, the oxide of gold is reduced simultaneously with the chloride of silver, and the print is already toned when it leaves the pressure-frame, and only requires fixing. The color of the print before fixing is something of an olive-black tint.

The operations are simple enough, the chief disadvantage being that the prepared paper does not keep well either before or after exciting. The salting solution stands as follows:

Chloride of Gold, . . .	60 grains.
Chloride of Ammonium, .	120 "
Water, ...	20 ounces.

This is applied by floating in the ordinary manner, and the paper is to be allowed to remain from half a minute to two minutes, depending on circumstances. It is then dried rather quickly, but not perfectly, as it is better that it should be slightly damp when submitted to the exciting solution. In this state the paper will keep about twelve hours in the dark; but the influence of light or time discolors the paper by reducing the gold.

This paper is excited in a 60-grain ammonio-nitrate bath made as follows: 1200 grains of nitrate of silver are dissolved in 15 ounces of water, and then converting it into an ammonio-nitrate by the careful addition of strong ammonia, until the precipitate first formed on its addition is just redissolved. The quantity is then made up to 20 ounces by adding more water. If the ammonia be in excess, the proofs will be gray and weak; if, on the contrary, it be deficient, the proofs will be bronzed and hard. The paper is floated from a minute and a half to three minutes, as circumstances demand; and then is thoroughly and quickly dried by hanging it before a fire or in a warm room.

Mr. Hennah then submitted the print, after exposure, to a somewhat complicated fixing bath, which is not, I think, necessary. I have got very good results by employing at this stage an ordinary hypo fixing bath.

French Polishing Prints.—Where prints are required for decorative purposes, or where for any purpose a very highly polished surface is required, a method analogous to ordinary French polishing may be adopted with advantage. I have seen recently some developed enlargements treated in this way very successfully. The process is described as follows:

"After the prints are washed and dried as usual, take some clear size made from parchment cuttings, which, when quite cold, is of the consistence of calve's-foot jelly, but should be used just warm enough to be melted. If the prints are unmounted, immerse them for one minute; if mounted, lay on the size with a broad camel's-hair brush, and hang up to dry in a warm place free from dust, as every speck will show when finished. When quite dry, take a piece of cotton-wool and pour on it a quantity of white French polish; over this place a piece of cotton or linen rag; rub on a drop or two of linseed oil; another piece of rag over this completes the pad with which to rub the print. This should be done in a circular direction, replenishing with more polish as required, and finishing off without the oil, but with a little methylated spirit added to the polish instead. Finally, finish the polishing with a pellet of dry cotton-wool.

"The clear size must be used quite fresh, as in a few days it goes watery, when it is useless.

"The prints are best touched-out after sizing.

"Prints colored either in water or oil will polish quite as well as plain prints, water-colors being made to appear very much like oil.

"It adds force and brilliancy, and brings out detail. It is impervious to damp; can be applied to both sides of the photograph before mounting, so that no ordinary outward influence can afterwards affect it; and can be renewed at any time."

The National Photographic Association—I am much interested in the aim and proceedings, so far, of the National Photographic Association, and my election as one of its honorary members affords me much pleasure. So far as I can see it has no prototype; an association with such comprehensive aims has not existed before; and if it be carried out in the spirit in which it has been projected, it cannot fail to promote the interests and conserve the status of photography as a profession. This country has been the especial home of photographic societies; we have now over a dozen; there are four in London, but in none of them have the interests of photography as a *profession* ever been considered or discussed. Photography as a science and as an art has been the sole consideration. This is perfectly right, for they were established with that view only. But the importance of considering the interests of photography as a profession, cannot, I think, be over-estimated; and in considering that phase of its interests, its position as an art will of necessity be elevated also. Hitherto photographers have not had an opportunity in any general manner of interchanging ideas on their professional interests; they have had no opportunity of arriving at unity of purpose and resolving on unity of action. Of a necessity each photographer has wrought out his own aims, not with a view to injure his neighbor, but simply to serve himself. An unconscious and unintentional antagonism arises, unwholesome competition sets in, a race is initiated as to who shall do the most work at the lowest rate, instead of who shall do the best work and secure the most remunerative prices. The public are not benefited by such competition, whilst the art and its professors are deeply injured. I foresee, in this National Association, if it be properly carried out, the means of giving a death-blow to this suicidal kind of competition. Professional photographers will come to understand each other and agree to aid each other in carrying out aims which will tend to make the art universally remunerative and reputable. Such a state of things will be just as valuable to the public as to the art itself and the profession, for a higher class of work will necessarily follow. There is only one caution which will need attention; that is, to avoid the narrow and petty spirit which has too often characterized "trades-unions," which have some kindred aims. I think when the aims of the Association are understood, the majority of the photographers in the States will of necessity join and form a power for the benefit of the art, the value of which cannot yet be fully estimated. So far as the aid and sympathy of one of your distant honorary members can serve the Association, you may at all times command mine.

COLLODIO-BROMIDE PROCESS.

EFFECT PRODUCED BY VARIATIONS IN THE COLLODION.

BY M. CAREY LEA.

The whole collodio-bromide process is still so new, that we have little or no positive information as to the effects traceable to variations in the composition of the collodion. We know, however, that the same rules that govern the ordinary wet process, do not prevail in the collodio-bromide, and it consequently follows that all our knowledge of such detail must be obtained by diligent and careful study; only so can we build up this branch of photography, and lay all its advantages open to the intelligent photographer.

The following examinations were entered into with a view of endeavoring to make out the influence, 1st, of different saltings; 2d, of varying the proportion of alcohol and ether.

I. Effects of Different Saltings.

Three collodions were made by the following formulæ, and were placed aside for a month to ripen.

1. In each ounce of solvents were dissolved—

Bromide of Cadmium,	12½ grains.
Bromide of Ammonium,	2 "
Pyroxyline,	6 "

2. Potash collodion. In each ounce of solvents:

Bromide of Potassium,	1 grain.
" Ammonium,	3 grains.
" Cadmium,	8 "
Pyroxyline,	6 "

3. Zinc and potash collodion:

Bromide of Zinc,	1½ grains.
" Ammonium,	3 "
" Potassium,	1 "
" Cadmium,	6½ "
Pyroxyline,	6 "

The first of these collodions, after ripening for a month, was sensitized with 22 grains nitrate of silver to the ounce. The second and third with 20 grains, as they contained a proportionately less amount of bromides.

Although bromide of potassium has very little solubility in alcohol and ether, yet this slight solubility is very materially helped by the presence of the cadmium and ammonia salts. It is, therefore, a very great mistake in mixing any collodion, in which any potassium salt finds a place, to attempt to dissolve the respective salts separately. The proper plan is to place them all together in a large test-tube or small flask, and to pour alcohol over them. Heat is to be applied with care, to avoid accidents, and the potassium salt is got into solution by virtue of the other salts, with which it appears to form double salts of materially greater solubility than that of the bromide of potassium alone.

I may take this opportunity of mentioning a fact, of considerable interest to workers in collodio-bromide: it is, that when it is desired to have a newly mixed collodion ripen as soon as possible, the collodion, instead of being placed in a cool, dark spot, should stand in a warm, well-lighted room, in order that the salts which it contains may be made to react as quickly as possible upon the pyroxyline in solution, and bring about that condition which is so essential to success in collodio-bromide work.

When these collodions had stood a month, they were sensitized with nitrate of silver, and a set of plates was made, to which exactly equal exposures and equivalent developments were given. And the following facts, which will have considerable interest to collodio-bromide workers, were clearly made out:

1. The addition of even so small a proportion as one grain to the ounce of potassium salt, exerts a perfectly well-marked influence upon the collodion. This *ripens with considerably greater rapidity*, and, at an earlier period, gives images free from veiling and with the necessary density.

But the *collodion is distinctly inferior in sensibility*, it, therefore, gives stronger contrasts and more brilliancy, but less softness and less detail in dark shadows, and, in the less illuminated part of the picture generally.

On the other hand, it shows less tendency to fog.

A difference produced by this very small proportion of potassium salt was one which could not in the least have been anticipated was produced. This was a much increased tendency to osmotic action, *i. e.*, penetration of the film by the liquids employed. This effect varied with different preservatives. With some it rises to such a pitch that when the plate was plunged into the alkaline developing bath, in half a minute the plate appeared covered with round, dark spots, darkest in the middle, and shaded off to the edges; these were from one-tenth of an inch up to half an inch diameter, and so near as to touch each other. Apparently, the plate was ruined, but, in the later operations these disappeared, and left no trace or stain behind. They consisted of developing liquid which had forced its way through the film, and had collected in these flattened drops, flattened by the pressure of the film against the glass. When working with collodions containing only cadmium and ammonium salts, even in very various proportions, nothing of the sort had ever presented itself. This action seems, therefore, to be a characteristic action of the potassium salt.

Action of Zinc.—I was induced to test the action of bromide of zinc from the following circumstance: an intelligent photographic friend, whilst lately travelling in Europe, met with some remarkably fine specimens of copying work, which he purchased. In a conversation with the maker, the latter stated that he used *bromide of zinc* in his collodion, and that, without this addition, he found it impossible to get such good results in copying oil paintings. The proportion used varied with the circumstances of the case, depending upon the greater or less actinic power of the colors in the picture, but, if I recollect aright, was mostly about one-tenth the whole salting.

Without conceiving that there exists much resemblance between copying oil paintings and collodio-bromide dry work, the above seemed to point to some distinctive influence of bromide of zinc, I, therefore, included it in my trials. But the result was markedly unfavorable. It was, indeed, curious to see how much influence these trifling additions of other bases produced. Plates made with the zinc collodion were very decidedly less sensitive, and they showed a tendency to produce small hazy spots, not met with at all in using the other collodions.

Rejecting, therefore, totally the zinc collodion, the question narrows down to the advantage or disadvantages of the addition of one grain to the ounce, of bromide of potassium. And I think this addition may be useful when it is desired to have newly-mixed collodion in order at the earliest possible moment for use. But, when time can be given to the ammonium-cadmium collodion to ripen fully, it will deserve the preference, by reason of its greater sensitiveness and detail in the shadows, and its much less disposition to blister.

II. INFLUENCE OF ALCOHOL, ETHER, AND WATER.

When a collodio-bromide collodion is extended over the plate, it has to carry with it a body of bromide of silver, which adds materially to its viscidity, and requires a somewhat greater care in the work. The smooth extension of the liquid will always be more easily effected when the materials are free from water, than when the alcohol and ether are of lower grade.

With respect to the relative proportions of alcohol and ether, my experiments brought me to the conclusion that the proportion of alcohol could not be increased beyond that usually employed — equal parts of each — without manifest disadvantage. The tendency, latterly, amongst wet operators, some at least, has been to give a preponderance to the alcohol, in the belief that greater detail in the shadows was thus obtained. However this may be in the wet process, it is certain that when a collodion is mixed with alcohol, two parts, to ether one part, such a collodio-bromide is very difficult to coat a plate with, without getting crapy lines and a more or less structural film. It is certainly not impossible to obtain a perfectly structureless film with such a collodion; I have succeeded in doing so; but it is more difficult, and there seems to be no object whatever gained by such a change. It is, therefore, probable that the equal bulks of alcohol and ether now commonly used, will continue to be recognized as the most useful proportions.

When it is deemed advisable to use bromide of potassium in making the collodion, it is hardly necessary to say that it should be reduced to fine powder before attempting to dissolve it; this is not necessary with the other bromides.

Curious Deposit of Metallic Silver in the Nitrate Bath.

Quite recently I had occasion to examine the contents of a box of photographic apparatus which had made the tour of the Continent from the Atlantic to the Pacific Ocean, returning via the Isthmus of Panama, after an absence of about three years, part of which time, from February, 1867, to January 8th, 1869, the box had remained securely packed and unopened.

Nothing of any particular interest was expected to be found in the battered remains of what had once been a complete outfit, but after unpacking various damaged articles, I discovered a 4-4 negative bath made of hard rubber, with a cover secured by two iron clamps. Although not a prepossessing-looking article, I examined it carefully, and found a large quantity of metallic silver which had deposited on the top of the bath, also in the joint under the cover. After some difficulty the top was forced off, and all the sides of the bath were in the same condition, covered with a beautiful growth of metallic silver, extending from the top 3 or 4 inches downwards, resembling delicate fern-like shapes of sparkling silver. The bath had been placed upon its side, so that the solution of silver, by the motion of travelling, must have been continually in contact with all its interior parts, as the bath still contained about 6 oz. of nitrate of silver of decided strength, smelling strongly of alcohol and ether.

The deposit of silver was quite thick, requiring the application of a file, chisel and sandpaper to remove it entirely.

In the bottom of the bath was found several crystals of brilliant metallic silver over one-quarter of an inch long, which had probably broken off when the cover was removed.

It seems difficult to account for this large deposit of metallic silver. Can it be that electric action produced by the iron clamps would have reduced the nitrate of silver?

John C. Browne.

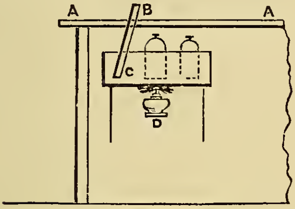
PHOTOGRAPHY IN WINTER.

BY J. C. LEAKE.

It is well to keep all the solutions at an equal temperature in winter, and to effect this, the following arrangements will be found useful:

A box or trough, about 6 or 8 inches in depth, and 18 or 20 inches in length, should be obtained. This should be made of tinned iron. The bath should be of glass or porcelain, and the bottom of it allowed to rest in this trough, which should be filled to about 4 inches in depth with water. A small jet of gas should be arranged under this, so as to raise the temperature to about 60°. In this trough may be placed the developing and intensifying solutions, which will thus be readily kept at a proper and equal temperature, as long as may be required. Should this water-bath become too warm, the gas may be turned off (the water will keep warm a long time), or the spirit-lamp, which will answer the same purpose, may be removed.

This little arrangement will readily be understood from the following diagram. A A is the operating table, B the bath, C the trough, D the spirit-lamp or gas-jet. This simple kind of apparatus will be found very useful. In summer it may be filled with cold water, and if a piece of ice be, from time to time, thrown into it, the trouble incident to working in hot weather will be found to decrease twenty-fold.



The studio should also be kept warm, both for the comfort of the operator and the sitter, and, if possible, the fire should be in an open grate; it looks more cheerful, and no noxious vapors are generated, as when gas stoves are used.

With respect to the chemicals, very little need be said, except that, as a matter of course, they should be in the most sensitive condition. In practice, nothing has been found better than a fully bromo-iodized collodion, which may be considerably thicker than that used during the summer months.

The nitrate bath should contain from 35 to 40 grains of silver per ounce; and it will be found that a freshly-mixed solution will work better than one saturated with iodide and contaminated with ether and alcohol. Not much is gained by increasing the strength of the iron developer, beyond that found to work best at ordinary times, with the collodion and bath in use. Use as little acetic acid as possible. If the solution be mixed the day before use, a very small quantity will suffice to keep the shadows free from fog; any more than this will simply retard the development, and render the deposit blue and weak.

In cold weather, or in a bad light, pyrogallic acid will rarely be required for redevelopment; and where intensification is required, it will be best to obtain it by means of an old solution of iron, to which a few drops of silver solution are added just before use. Cyanide of potassium should not be used for fixing a negative taken in a bad light, as the deposit is very easily dissolved. In using hyposulphite, however, it should be remembered that much washing is required, especially in cold weather.

During cold and damp weather, the film is very apt to leave the glass, especially when the development has been very much pushed. To prevent this, warm the plate before coating with collodion, and after fixing and washing, pour over it a weak solution of gum; before varnishing, be sure to thoroughly dry the picture.

The great difficulty in winter, is to get sufficient body in the half-tints of the picture. Care should therefore be taken not to over-intensify. It is better to keep the negative decidedly thin. It will print faster and better in a dull light than if of full intensity, and the proof will be more harmonious.

We cannot expect to obtain pictures rapidly during the winter; but if the exposure be prolonged, and care taken in all parts of the process, we may at least produce *good* ones. During the present winter the writer has produced many negatives, which have all the bloom and vigor of those taken in the summer months.

It will be well to provide several screens covered with white paper, which may be used to reflect light into places which the direct rays cannot reach.

There will, of course, be many days upon which it will be impossible to work; but if the precautions we have suggested be taken, the number of these will be greatly reduced, and the quality of the pictures vastly improved.—*Ill. Phot.*

THE SHAW PATENT.

Having been asked my views in regard to the claims of the Shaw & Wilcox Company, now owners of Shaw's patent apparatus for saving silver and gold residues, I read their circulars carefully over and Mr. Shaw's original and re-issue claims.

In the remarks prefacing the description of the patent, Mr. Shaw states that he has invented a "new and improved apparatus for saving silver, etc., from waste solutions." This does not mean that he was the first to discover the value of these solutions and to invent a method of saving them, but that his is an improvement over the methods in use at the time of the issue of his patent. As there were other modes in use, they required necessarily the employment of vessels of ordinary construction, such as bottles, dishes, barrels, tanks, etc., in which to place the silver and gold solutions, in order to submit them to the proper chemical manipulations; hence he does not claim the use of an ordinary vessel, but invents, as he styles it, an "Improved Apparatus" for this purpose, which is the vessel illustrated in the January *Photographer*, page 34, or modifications embracing the same principles.

Photographers have for years saved: 1st. baths, washings of prints, and other solutions containing silver, in vessels that would hold them, and converting them into chloride of silver by means of muriatic acid or a solution of common salt; this kind of a waste I received from photographers to reduce as early as August 25th, 1857. 2d. The precipitate from the developing solution caught in a dish or other suitable vessel placed at the side of their sinks; this waste I received as early as June 9th, 1859. 3d. Hyposulphite solutions, and precipitating them by means of sulphuret of potassium, metallic zinc, or copper. 4th. Solutions containing gold, and precipitating them by a solution of protosulphate of iron. In Mr. Shaw's printed directions for saving wastes he states that the first two wastes above described should be saved in his apparatus, and I have given from my books the dates at which I commenced to receive residues of this nature, showing that photographers were aware of their value and means of saving them years before the issue of his patent. In the same directions he advises particularly that the last two wastes be not allowed to run into his "Apparatus," but that they be treated each in a separate vessel and by well-known chemical processes; hence he cannot claim their saving as conflicting with his patent.

A barrel or keg with the head taken out; a large ordinary glass bottle, a square or round tank of ordinary construction, a porcelain evaporating or crystallizing dish, or an earthen or stone-ware dish are not patented articles, and gold or silver solutions can be put into them and treated by the above-described or any other well-known chemical processes without rendering the manipulator liable to the Shaw & Wilcox Company for damages; it is only when vessels are modified or constructed according to the principles claimed in their patent that the user of them becomes an infringer if he has not obtained a license.

On a first reading of the Shaw & Wilcox Company's circular, most photographers would ask, as did Mr. Fox in his communication in the January *Photographer*: "Has a man a legal right to preserve his own property?" as its claims would seem to cover all means used for saving silver and gold solutions. The above remarks I think, will place the subject in a clear light.

James F. Magee.

PHOTOGRAPHY FOR BEGINNERS.

BY PROFESSOR J. TOWLER, M.D.

I.

It is my intention to write an article every month, a sort of instruction in plain language, by means of which many may learn the art and practice of photography, who have no direct method of obtaining this instruction from a teacher. It is supposed, however, that those who wish to become pupils, have both seen a photographic studio or gallery, and are acquainted, in some degree, with its fixings and apparatus. The practical photographer will need a sky-light, as, also, a side-light; whereas, the amateur may very well dispense with the former, if he can only manage to have at his command a tall window or side-light facing the north. The true artist always, we believe, prefers such a light. You will want a background and a couple of side-screens, the latter being intended to modify the direct light from the window, by reflecting a portion of light upon parts that are too much in the shade. In addition, you will need a chair, a head-rest, a small table, and whatever other accessories you may deem necessary to embellish the picture. A carpet must not be forgotten. Now, all these things you can get of our photographic stockdealers, ready made, and manufactured expressly for the purpose, and they will select them for you better than you can do yourself, if you will describe the size of your room, and the work you intend to perform.

Furthermore, a lens, camera, and tripod or camera-stand, are indispensable. Be very particular to get a good lens; do not begrudge the price; be satisfied with none but such as come from opticians of decided reputation for superior workmanship. Dallmeyer, Voigtlander, Steinheil, Zentmayer, Usener, Jamin, Boyle, and Schnitzer possess this reputation. In the next place, you require chemicals, such as protosulphate of iron, double sulphate of iron and ammonia, cyanide of potassium, hyposulphite of soda, nitrate of silver, chloride of gold, iodide and bromide of ammonium, iodide and bromide of cadmium, iodide and bromide of potassium, carbonate of soda, acetic acid, alcohol, ether, gelatine, nitrate of uranium, bichromate of potash, sulphate of copper, pyrogallic acid, citric acid, hydrochloric acid, sulphuric acid, nitric acid, chloride of strontium, chloride of calcium, chloride of magnesium, chloride of sodium (common salt), acetate of soda, nitrate of magnesia, nitrate of soda, ammonio-sulphide of potassium, gallic acid, rotten-stone, albumenized paper, albumen, shellac, negative varnish, positive varnish, red litmus paper, blue litmus paper, filtering paper, beeswax, pyroxyline, and a box of colors. Furthermore, you want a glass or porcelain bath, dishes of porcelain, glass, or gutta-percha, for washing, toning, and fixing the prints; funnels, flat glass for negatives of various sizes, japanned plates, a glazier's diamond, pressure or printing frames, retort-stand, pneumatic holders, glass tubes, chamois leather or buckskin, plate-vice or holder for cleaning glass, broad camel's-hair pencils, graduated glass measure, collodion bottles, focussing-glass, focussing-cloth, argentometer, collodion filter, and a pestle and mortar.

The above are the principal articles needed to begin a small establishment, but more will be needed as you advance. Now, do not buy these at random, for instance, at a drug store in your village, but make out your order to a respectable and honorable stockdealer, who will select what you want or order, and on whom you can depend. Suppose you order, for example, a pound of nitrate of soda at a drug store, you will get, ninety-nine times out of a hundred, an impure article, not at all suited for photographic purposes; the ether, too, at such stores, is the ordinary commercial article, and not adapted for the manufacture of collodion. In fine, let me repeat the injunction: buy your articles, all of them, at the proper places—from respectable, large photographic houses.

We will now take it for granted, that your little gallery is suitably stocked, and everything is conveniently located, and all is comfortable around you—you are ready to receive your first lesson.

The first thing is to learn how to prepare a picture on a piece of japanned iron plate; this picture is sometimes called a melainotype, tin-type, etc. It is a sort of photograph much in demand; is made quickly, and can be made so as to be very pleasing.

COLLODION.

Alcohol, ...	3 ounces.
Ether.	4 "
Iodide of Cadmium, . .	28 grains.
Bromide of Cadmium, .	14 "
Pyroxyline, . . .	42 "

This collodion ought to be made three or four months in advance, and kept in stock. It is as colorless as water, is very sensitive after it has become ripe, and it yields very clear, white pictures, in fact, superior to any other. The only trouble is this: when *freshly* prepared it is very apt to produce a silver film, called fogging, all over the plate; but, by keeping, this trouble gradually passes away. In the meanwhile, therefore, as you are beginning, and have no stock-collodion on hand, prepare the following for present use:

Alcohol, ...	3 ounces.
Ether, ...	4 "
Iodide of Cadmium, . .	24 grains.
Bromide of Cadmium, .	12 "
Iodide of Ammonium, .	6 "
Bromide of Potassium, .	6 "
Pyroxyline, ...	42 "

In the latter formula, it is necessary to filter the collodion before use, and, naturally, to shake the contents of the bottle frequently, in order to dissolve the cotton and the salts before you proceed to filtration. In the former formula it is not necessary to filter the collodion, but simply to put it away in a cool place to ripen and settle; the requisite quantity is then decanted when wanted.

NITRATE BATH.

Recrystallized Nitrate of Silver, .	4 ounces.
Distilled, or Pure Rain-Water, .	40 "
Iodide of Potassium, ...	4 grains.
Glacial Acetic Acid, ...	1 drachm.

Dissolve the silver in 10 ounces of water, and the iodide of potassium in 1 ounce of the water, then mix these two solutions together and shake the mixture until the yellow iodide of silver is dissolved. Now pour this mixture to the remaining 35 ounces of water and the 1 drachm of acetic acid. Filter the solution through clean filtering paper. It will then be ready for use.

DEVELOPER FOR MELAINOTYPES OR TINTYPES.

Protosulphate of Iron, .	3 ounces.
Distilled or Rain-Water, .	32 "
Alcohol, ...	2 "
Acetic Acid, ...	3 "

Let the salt be pulverized in a clean mortar, then add the liquids, and dissolve. This solution must be filtered.

FIXING SOLUTION.

Cyanide of Potassium, .	2 drachms.
Water, ...	8 ounces.

With these materials, we can now take a picture. In order to succeed well, it is very important to have and to keep all your bottles, dishes, and glasses perfectly clean, and to filter your solutions, such as collodion, silver bath, and developer whenever you discern any small particles floating in them.

There is a knack in flowing a plate with collodion, as there is in performing almost any operation in photography. In the first place, dust your japanned plate with the fine camels'-hair pencil, then seizing its front, left-hand corner between your first finger and thumb of the left hand, and holding the plate level, you pour the collodion upon the more distant right-hand corner, and tilt the plate gradually until it is completely covered with collodion; now let all excess of collodion flow off by the front, right-hand corner of the plate into the bottle again; let the plate drain into the bottle, taking care to move the plate in a vertical plane, so as to prevent the collodion film from setting in the form of a network, or in lines and streaks. As soon as the collodion has set, place the plate on the dipper and lower it into the silver solution. Move the dipper, holding the plate, up and down for about half a minute; this removes the apparent greasiness on the plate, and allows the silver solution to act with uniformity.

During the time that the plate is in the bath, you place the sitter in position, and focus the lens upon the eye, so that this part is perfectly sharp. Some persons focus upon the tip of the ear, or some part intermediate between the back part of the head and the front. We shall recur to the art of focussing and fixing the sitter in proper light and shade, in another lesson. The plate now will be ready. Lift it out of the bath, let it drain, and place it in the plate-holder. The plate-holder being placed in the camera, the slide is drawn, and then the cap is removed very gently, so as not to shake the camera. Expose—How long? I cannot tell you. It depends upon the light, your lens, and the condition of your chemical preparations. Try six or eight seconds. We will now proceed to the development in the yellow-room. Hold the plate in the left hand, as before, when the collodion was poured on, but the developer is poured on from the front, and the plate is tilted downwards and from you, and the mouth of the bottle containing the developer is placed down on a level with the front of the plate; otherwise, if you pour the developer from a height, you wash off the silver from the film, and thus produce a weak spot in the picture. Aim to cover the plate *all at once* with the developer. If the picture begins to appear in a few seconds, the time is probably about right; if immediately, the time was too long; if after several seconds, the time was too short. Develop until the eyes are tolerably distinct and the drapery just appears, but no longer. Observe this rule. Most beginners develop too long. Wash the film thoroughly under the tap, and then flow over it the fixing solution until the picture is perfectly clear; wash again thoroughly, and dry the plate before the fire or near the flame of a lamp. Now is the time to color the parts that require color. The top of the head is frequently white, although the hair of the sitter is black; this white is removed or covered over with a little soot obtained from burning a candle under a piece of glass. If the picture is now satisfactory, warm the plate and coat it with crystal varnish. I will tell you how to prepare this and other varnishes hereafter.

The Solar Eclipse, and Some of its Teachings.

BY PROF. HENRY MORTON, PH.D.

I HAVE just examined, with great interest, a set of photographs of the sun during the late total eclipse, taken by the North German Expedition at the town of Aden, in Arabia.

There are four pictures in all, made during the continuance of the totality, a time of 3 minutes, and one made afterwards, showing the *solar crescent* wreathed and draped in clouds, this being its normal condition during the day at the station above named.

In the first of these pictures, we find the upper margin of the solar atmosphere delineated, the sun itself being entirely behind the disk of the moon, whose black and irregular edge is clearly defined in the picture, at most points, against the bright background of luminous prominences, which appear, like the flames and glow of a great conflagration, to stretch for a distance, which a simple calculation assures us to be about 500,000 miles around the solar disk.

The appearance of these so-called "flames" or luminous clouds, is very interesting. Such objects have been seen, and even photographed on former occasions. They were first remarked in the total eclipse of 1842, and they were successfully photographed by De la Rue and Father Secchi in 1860. On each occasion their location and form was very different, and it now appears, from a comparison of the observations made at various stations, where the eclipse was seen at successive times, that these objects undergo marked alterations within a very short period.

Returning to the forms actually delineated in the photograph before us, they seem to represent most accurately the rolling clouds and streams of flame which would appear above a vast conflagration, urged by a strong gale blowing across the line of view, if we were looking at it over the ridge of a serrated range of hills.

Observers on this last, as well as on previous occasions, describe these prominences or "flames" as having a vivid rose color.

This above-mentioned likeness to flame is, however, a similitude in form only, and is not the representative of any corresponding identity in nature.

These apparent flames and clouds of burning matter, are in no wise related to what we are accustomed to indicate by these expressions, but are masses of gas intensely hot, hotter far than any combustion would make them, but certainly not *burning*, that is, combining with other substances as are ordinary or true flames.

The proof of this comes to us in various ways. Thus, when these objects are examined with the spectroscope, they show a few bright lines which seem to correspond very closely with those developed by intensely heated (but not burning) hydrogen, and, perhaps, sodium, but show no trace of those which should occur if oxygen or other supporter of combustion were present.

To reproduce such a rose-colored light,

and to obtain, with the spectroscope, such lines as are seen in these sun-clouds, we do not, in fact, burn a jet of hydrogen, which would give us a pale-blue flame, but we inclose some of this rarefied gas in a fine glass tube, and then pass through it a powerful current of electricity, when it will be intensely heated, and emit a beautiful rose-colored light, which, resolved by the spectroscope, is seen to consist of three bright lines, a crimson, a blue, and a violet, together with many others, so faint, however, as to bear no comparison with these three first named.

This experiment, when its relations are fully realized, is remarkably impressive, for it is, in fact, an artificial reproduction on a small scale and within our own control, of the stupendous phenomena of the "solar prominences." Our little glass tube, full of hydrogen, then becomes a specimen of that vast flame-ocean, or a block from one of those great flame-towers of the sun, which we shall presently descibe.

Late experiments, by Deville, seem also to indicate, that at such temperatures as must exist upon the solar surface, such a *combining* action as "*burning*" would be impossible, for he has proved that at such a heat the most fixed compounds are *decomposed*, and the most mutually attractive elements, even when mingled together, find it impossible to combine. Thus oxygen and hydrogen which, when simply ignited, combine with detonating energy, under this yet intenser heat, flow side by side, commingling and interfused, but without chemical union. We thus see that the term flame can only be applied to these objects in a figurative, or simply form-describing, sense.

How then may we more truly consider them?

Let us see, first, what more this solar-eclipse-photograph has to show us.

Following round the moon's edge to the right, from the vast fire-clouds before described, we soon reach a great tower-like column of similar matter, shooting up to the stupendous elevation of seventy thousand miles, and having a base of some ten thousand miles in width.

We have all read, in the Arabian Nights, of the vast structures of enchantment, or piles reared by the labor of gigantic Afrites; but the wildest flights, of even Oriental imagination, never attained to such grandeur as we find realized in this actual, if transitory, citadel of the sun. Resting on the luminous arches of the solar photosphere, it stretches its huge bulk up into the heavens for a length which would enable it to coil thrice around our terrestrial globe, and wrap our entire planet, thrice over, in its scorching embrace.

The various spectrum measurements of this prominence, which were made by those sent to the East for the purpose, while showing minute discrepancies, such as might be expected from the difficulty of the observation, agree, in a marked manner, as to the presence of a red line, coincident with C, an orange line a little above D, a blue line very close to F, and a violet line at G.

This would indicate that these protuberances are mainly composed of hydrogen gas, and are, in fact, cloud-like masses of that substance, projected upwards from a thick layer of the same, which (as we shall see) appears to envelop the entire surface of the sun to the depth of about five thousand miles.

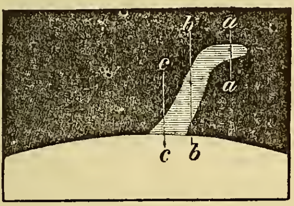
We have alluded to the difficulty of these observations during the eclipse. This is, indeed, great; chiefly on account of the very brief time afforded, and the rarity of such an opportunity; but these drawbacks will now no longer obstruct the progress of discovery in this direction. Lockyer, in England, and Janssen, of the French expedition, in India, have independently discovered a means of observing these phenomena without the assistance of the eclipsing moon.

The principle involved is briefly this. A luminous gas, producing light of a few fixed degrees of refrangibility; this is broken, by the prism, into a certain number of bands, which, by further refraction, may be separated to greater distances from each other, but cannot themselves be spread out and so diluted or diffused. On the other hand, white light, like that of the sun, consisting of rays having every possible degree of refrangibility, will suffer continual dispersion and weakening, in proportion to the amount of refraction to which it is subjected.

It is then possible, by thus enfeebling the light in the spectroscope, to subdue the white light more rapidly than the monochromatic, or gas-emitted rays, and thus render these last visible, even in presence of the others.

By directing a spectroscope, prepared with this view, towards the edge of the sun, the experimenters above named first saw, and others following their example, have since seen, a faint solar spectrum, above, and in contact with which, was a gaseous spectrum, varying in the height and character of its lines in different parts of the solar edge.

The difference, in height, of the spectral lines, evidently indicated a difference in elevation in the luminous prominences to which they owed their existence, so that, by noting this point, a sketch of the prominence might be made, by construction, from its spectrum.



The accompanying cut shows such a prominence, thus measured out by Mr. Lockyer. When the spectroscope crossed the part *a a*, a luminous spectrum was seen separated from the solar one by a blank space. At *b b*, the spectrum lines were very long; at *c c*, short. This indicates the method by which this figure was plotted.

M. Janssen, in alluding to his observations of the same sort, says:

"The day after the eclipse, the method was applied with success. I was enabled to assist at a new eclipse, as it were, which lasted through the entire day. The old protuberances (those seen during the eclipse) were greatly modified; there remained scarcely any trace of the great tower, and the distribution of the gaseous matter was very different. From this day (August 19th) to the 4th of September, I have constantly studied the sun from this point of view. I have made pictures of protuberances which demonstrate with what rapidity (often in some minutes) these immense gaseous masses are broken up and displaced. In conclusion, during this period, which has been like an eclipse of seventeen days, I have collected a great number of facts on the physical constitution of the sun."

We shall wait with great interest the publication of M. Janssen's results, which we may expect very soon.

While the phenomenon of total eclipse has thus been robbed of its pre-eminent value, it still remains of great interest as a means of obtaining a permanent photographic record of these remarkable characteristics of our luminary, and we hope that every available instrument will be put in service on the 7th of next August, when this country will have an eclipse, all to itself, to operate upon. The path of totality (which will be about one hundred miles wide) will pass Alaska, latitude 60° 46.9′ north, longitude 68° 4.6′ west of Washington, at noon. Crossing British America, it will again enter the United States territory near the head of Milk River, longitude 30° west; pass through the southwest corner of Minnesota, crossing the Mississippi River near Burlington, Iowa; the State of Illinois just north of Springfield, and the Ohio River near Louisville. From thence it will run in a southeasterly direction, through the States of Kentucky and North Carolina, and reach the Atlantic Ocean near Beaufort, North Carolina, about sunset.

North and south of this line the eclipse will, of course, be only partial.

Professor Crookes, in an article on this subject, in the *Quarterly Journal of Science*, strongly advises that the wet collodion process should not be exclusively adopted, but that the daguerreotype and dry albumen plates, also, should be used, as these will give more sharpness of detail, and better bear enlargement. Secondly, that direct enlargement, by proper optical arrangement in the telescope, should be adopted in some cases; and that, thirdly, practised photographers, and not government officers, should be put in charge of the work; a failure, in this last respect, having, in the case of the English Expedition, resulted in a great want of success, as regards the photographic results of their operations.

PAPYROXYLINE.

A few weeks ago we received from Dr. Liesegang, Elberfeld, Germany, a sample of his new Papyroxyle or Paper Pyroxyline, and since then have received some more, which is all one could desire. It dissolves quickly in equal parts of ether and alcohol; makes a tough, entirely structureless film, four grains to the ounce producing as much strength and thickness as five grains of gun cotton, making it therefore, more economical to use. We cannot say more for it, than to say, that it is fully equal to our best gun-cottons. The dried film is absolutely perfect, very adherent, and all desirable intensity may be secured by its use, without harshness.

It is recommended very highly for Mr. Lea's Collodio-Bromide process, and it will also be found particularly fine, we think, for dry processes generally; for ferrotypes and for all purposes where intensity is desirable. For porcelain pictures it is said to be admirable. We could ask nothing better, and it will no doubt assume a popular place alongside of our American gun-cottons, and be preferred by many. It comes in sheets about 7 x 18, and is apparently fine blotting-paper prepared by Dr. Liesegang's peculiar method. Dr. Liesegang is the editor of our contemporary, the *Photo Archiv.*

We shall take pleasure in giving further notice of our experiments with his new article. By reference to our advertisements, it will be found that his agents here have a quantity on hand for sale.

HOW TO PAINT PHOTOGRAPHS.

Many of our readers have said to themselves, on rainy and dull days: "Now, if I could only *paint photographs*, I could fill up these dull hours very profitably. But how am I to learn? There is no book published to give me full instructions, and I am not able to give the time to take lessons. Many dollars could be added to my none too overflowing purse if I could color. How shall I learn?"

This anxious query is now fully answered by the issue of a neat little work called, "How to Paint Photographs in Water Colors," by George B. Ayres, artist, and issued by our publishers. We have before announced its forthcoming, but it has been delayed by various causes; among others, to enable the author to make important additions to it.

Soon after this reaches the majority of our readers, it will be ready, and on the way to many of them, who have already ordered copies. Advance sheets are before us, and we have read the whole of it carefully and with interest.

The author's style of writing is so plain and so easy, that it cannot fail to instruct.

In reading his book, one almost imagines they hear him talking before them, and seated at his easel with pencil and palette in hand, demonstrating what he so fully teaches.

He says, in his "Introduction:" "No *book* ever *made* a painter, or ever will. Neither can art be *taught* practically by books, but the written experience of others may lend important *assistance* to the student who undertakes the task of *self-tuition.*"

This latter is what Mr. Ayres's little work of 128 pages amply does. It cannot fail to be immensely popular. Not only to those who are beginners, but to the accomplished artist, for the recorded experience of others is *always* valuable.

All those who have idle hours in dull days, should purchase it, and learn how they may utilize that time to their pecuniary advantage. Many a dollar can be made by a few handy touches of the pencil.

Try it. We shall review the work more fully in our next. Please read the publishers' advertisement.

"MANUAL OF PHOTOGRAPHY" BY M. CAREY LEA.

BY PROF. J. J. BROWN.

I trust that I shall do a favor to the "photographic fraternity," or, at least, to such of the "sons of light" as may desire to know much of practical value in regard to their profession, by calling their attention to the work named at the head of this article.

The value of a book in any department of learning, depends much on the amount of knowledge it contains, as well as the clearness with which its facts are stated. Amount of information, or clearness of statement, do not, of necessity, require a bulky volume or a multiplicity of words. The "Manual" of Mr. Lea well illustrates this statement. It is questionable if a work can be found, in the department of photography, in which so much that is valuable to the practical photographer is condensed in a volume of 336 pages, and at so reasonable a price as in the book before us. An examination of the table of contents will, I think, satisfy any one of the correctness of this statement. But it is, after all, not so much the number of subjects, as the *manner* in which they are treated, that give so great value to this work.

The volume opens with a brief notice of the lenses and cameras adapted to different kinds of work, and an outline of photographic operations.

Part second is chiefly devoted to a more extended description of the various lenses used for photographic purposes, pointing out, with admirable clearness and brevity, their principal excellencies, or, rather, the peculiar characteristic of each

It is doubtful, however, if the author appreciates the "Globe lens" as fully as its merits demand. After six years' experience with a pair of these lenses, in stereographic work, the writer feels justified in speaking of it in the highest terms. The difficulties some have experienced in the use of this lens is, no doubt due, in a great extent, to the attempt to use them with a stop of too small aperture. If a sufficiently large aperture is used, the pictures obtained with this lens will be found remarkably full, or rotund and brilliant. There is much reason to fear than an effort has been made by opticians, seconded by a desire on the part of operators, to obtain a lens embracing too great an angle. Objects taken with extremely wide-angled lenses, are presented too flat, and too much crowded together. It is quite probable, indeed, that an angle of more than 85° or 90° is usually a decided loss in brilliancy and harmony of shading. Lenses covering a large angle, when used with a sufficiently large aperture, to make them valuable for landscape work or portraiture, necessitate much more accurate focussing on the ground-glass, than lenses of smaller angle and longer focal length. Attempts have been made to obviate this difficulty by the use of diaphragms of small aperture. But this entails another series of difficulties, viz., insufficient light for proper focussing, slow working power of the lens, and a decidedly flat and worthless picture. It is stated that the "Rapid Rectilinear" lens of Dallmeyer, to which Mr. Lea refers (and which, by the way, I am told is not a wide-angle lens), obviates all the difficulties named. The writer has never seen one of these lenses or any of their work, and is, therefore, not prepared to express an opinion of their merits.

Any one designing to purchase a lens of any kind will, no doubt, find it a very profitable operation to buy this "Manual," and study carefully what is there said in regard to different kinds of lenses, and to lenses in general, before he makes his purchase. He will be much better prepared to understand what he needs, and may be saved from making a worthless purchase, if he is in possession of the knowledge there furnished.

(To be continued.)

GERMAN CORRESPONDENCE.

Albert's Process—Pigment Printing Process in Europe—Enamel Processes—New Manner of Making Positives on Collodion—Conversion of Old Negative Baths into Printing Baths—The Relative Sensibility of Iodide of Silver and Bromo-Iodide of Silver—Hayne's Stereos—On the Action of an India-Rubber Coating on Negatives.

Albert's process occupies the attention of photographic circles at the present time. It cannot be denied that his method furnishes finer prints in the half tones than have ever been produced before by any printing process with fatty colors, and the invention is important, as by it photographs can be produced *en masse.*

The business of making reproductions will particularly be largely benefited by it, and where it is necessary to furnish a large number of prints at a moderate price, as for instance, for book illustrations, the new process will be resorted to.

For portraiture, or where a few prints only are desired, the silver or pigment (carbon) printing processes hold their own.

The pigment printing process has been applied on a large scale in the printing establishment of Mencke & Co. in Hamburg. This extensive establishment is under the direction of one of my scholars, Mr. Schaarwachter, and furnishes not only direct carbon prints, but enlargements also.

You have seen the splendid positives on glass by Soulier, in Paris, which were so much admired at the Grand Exhibition, therefore it will be interesting to you to learn that Soulier makes these positives at present by the carbon printing process. He gives no special description of the process, but it seems certain that it is nothing but a transfer process as described by me about a year ago, and which is also explained in your valuable *Carbon Manual* on page 70. In England a large pigment printing establishment has been started on shares; it is called the Autotype Company.

Under these circumstances it cannot be surprising that so much attention has been paid of late to the processes that are related to the carbon printing process. One of these is the enamel process.

It is more than six years ago since Joubert published his essay on the subject, and very little has been said about it since.

M. Lafon de Camarsac keeps the process a secret by which he produces his very fine but extremely dear enamel photographs.

Lately some notices have appeared by Geymalt & Alker by the so-called dust process. The main points of this process are to make a sticky layer of gum containing a chromate, which loses its stickiness by exposure to light, consequently by being exposed to light under a positive the layer will remain sticky where it is covered by opaque spots. If the plate is then dusted over with a fine powder, the powder will adhere only to the sticky places and a positive dust picture will be formed. It is obvious that any powdered substance can be used for this purpose, but it is evident also that the time of exposure must be very nicely calculated, for when the time is too short the whole plate will remain sticky, while on the other hand when the exposure is too long the places intended to remain dark will fail to hold the powder and become weak. For this process the photometer has proved an excellent auxiliary.

With the following mixture and a thin positive, exposing to fifteen degrees, I have obtained excellent prints of a uniform briliancy:

For the layer of gum I take

Gum Arabic, . . .	6	grammes.
Red Chromate of Potass, .	2.5	"
Grape Sugar, . . .	4	"
Water, ...	72	"

The ingredients are dissolved hot and filtered; after this they are poured on a clean plate of plate-glass, and after the plate has drained, it is dried at a moderate heat, the positive is placed on top of this, black paper is put under the plate, and the whole well clamped together. After a short exposure the plate remains for a little while in the dark, the powder is very gently brushed or sifted over it, the excess is brushed off and the whole is flowed with plain collodion, containing from 2½ to 3 per cent. cotton. Now the plate is placed in diluted sulphuric acid (sulphuric acid, 1; water, 60). The film carrying the picture will leave the plate, and is now washed in three or four changes of water; next it is floated on glass or porcelain, and is left to dry; the collodion film is dissolved in alcohol and ether, and the picture is ready for the oven, to be burned in.

The burning process requires practice and experience.

The selection of the color of the picture is important. Geymalt & Alker recommend the following:

Oxide of Copper, ...	2	parts.
" Cobalt, ...	3	"
" Iridium, . . .	$\frac{1}{10}$	"
Burnt Terra Sienna, . . .	1	"
Flint Glass, ...	18	"

All the ingredients must be thoroughly powdered and precipitated.

The formula which I have given above for the gum solution is the one used by me. It is essentially different from the following, which Geymalt & Alker recommend.

Raw Honey,	1	grain.
Unrefined Sugar,	2	"
Gum Arabic,	12	"
Double Chromate of Ammonia,	240	"
Water,	240	"

This solution appears much too concentrated when we consider the proportion of the chrome salt to the proportion of water, and it is not surprising that some experimenters complain that crystals of the chromate make their appearance on drying the layer.

This process requires positives, and how to make them, by means of the camera, is generally known, but the thing requires a certain routine: the exclusion of side-light from the negative, and very exact focussing. The so-called light spots trouble the beginner considerably. I think it in order, therefore, to call attention to a process by which, without any optical apparatus, a positive is produced on the collodion film. Imagine a blackened tube (for instance, a stove-pipe twenty feet long, with a diameter of from six to nine inches), one end of the tube is open, the other one has an arrangement for receiving a plate-holder. In the plate-holder the negative is placed, the varnished side facing inward. Back of this is the sensitive plate. Four dots of sealing-wax on the negative plate will prevent the negative from touching the sensitive film. The distance will be one-half of a line.

The far opening of the "stove-pipe" is now closed; the plate-holder is put in position; the shutter is opened, and as the rays which fall on the negative are nearly parallel, the detail will copy sufficiently sharp. If we lengthen the pipe, the picture will become more sharp, but the time of exposure will be increased also.

It may be possible that one or the other of my readers has practised this plan before, but I do not remember of having read anything about it.

In one of my former letters, I published a plan of changing old and useless negative baths into positive printing baths. Generally speaking, I am no friend of doctoring, except when I am travelling. And when a bath has been doing its duty for weeks, and finally gives out, I much prefer make a new one, and use the old one for printing purposes.

But lately I have heard many complaints that these baths will not work; and these complaints are the more inexplicable to me, as I myself have been working for years with them. Lately I found, by accident, the cause of these complaints, *i. e.*, the iodide of silver, which is contained in the negative bath, should be removed before using them for printing purposes. One of my scholars neglected to remove the iodide of silver, and obtained prints which refused to tone. He then removed the iodide of silver from the bath, and had no further trouble.

The iodide of silver is easily removed. The bath is simply mixed with four times its volume of water; it is well shaken, left to settle, and the clear portion is poured off. It is then evaporated to the strength of 1 : 8.

In your December number of 1868, page 424, is a remark of our friend Carey Lea, based on the investigations of Warren De la Rue, on the sensitiveness of iodide of silver collodion plates.

De la Rue maintains that a pure iodide collodion, with a pyro developer, is more sensitive to light than a bromo-iodide collodion, and Mr. Lea very justly remarks that this assertion stands in conflict with the result of my experiments, according to which collodion sensitized with iodide of silver is sensitive to strong light, while bromo-iodide of silver is sensitive to feeble light.

I had read the remarks of Mr. De la Rue, previous to my departure for Arabia, and I was so much surprised, that I determined to make some experiments with his collodion and developer. For our object we selected the moon. Our instrument was our photographic telescope. We prepared an iodized collodion, with a pyro developer, and also a bromo-iodized collodion, with an ordinary developer, and what was the result? The iodized collodion gave a thick, hard picture, with strong, vigorous lights, but total absence of details in the shadows.

The bromo-iodized collodion gave a picture not so intense in the lights, but with much more detail in the shadows.

We subsequently tried both kinds of collodion, with the same developer, and obtained the same result.

These experiments seem to confirm what I have said on a previous occasion, when my experiments were made with terrestrial objects; and they induced the Aden Expedition to reject De la Rue's formulæ, and to adopt my own.

While speaking of the Expedition, I cannot omit mentioning a very sad experience which I have made. I believe it was Mr. England who recommended, some years ago, to cover the negative, previous to varnishing, with a solution of caoutchouc. A trial which I made some time ago, seemed to confirm the correctness of this opinion; in consequence I covered some of my Arabian landscapes with a caoutchouc solution.

When I returned to Berlin, I found these plates completely covered with a white excrescence. I poured alcohol on them, and it removed the white deposit; and, after varnishing them again, they appeared as bright as ever; but, two weeks later, the deposit reappeared. The alcohol process had to be repeated.

While closing this letter I had the pleasure of receiving a visit from Mr. Stemson, one of your fellow-citizens. He hands me, from Mr. Haynes, Broadway, Albany, a collection of twenty stereos, taken from anatomical preparations. They are, in fact, the best that I have ever seen in this particular branch. And while thus publicly tendering my thanks to Mr. Haynes, I remain, Yours, very truly,

Dr. H. Vogel.

THE BOSTON PHOTOGRAPHIC UNION.

A meeting of the Photographers of Boston and vicinity, was held at the rooms of Mr. G. H. Loomis, 7 Fremont Row, Boston, on Friday evening February 12th, 1869.

Mr. Albert S. Southworth was chairman of the meeting, and Mr. Fred. C. Low, Secretary.

It was resolved that the formation of a Photographic Society be proceeded with.

Mr. Loomis read a draft of a preamble and constitution, which, with slight amendments, was adopted, and at once signed by over twenty photographers.

The following officers were then elected for the current year:

President—G. H. Loomis.
Vice-President—T. R. Burnham.
Secretary—Frederick C. Low.
Treasurer—Simon Wing.
Executive Committee—J. W. Black, E. L. Allen, Augustus Marshall.

The meetings of the Association are to be held on the first Tuesday of each month.

The matter in reference to holding the next National Photographic Convention and Exhibition, in Boston, on the first Tuesday in June next, was then discussed, and a communication from Mr. David Bendann read in relation to the arrangements to be made. The matter was then referred to the Executive Committee, to report at the next meeting.

The Association opens under the most favorable auspices. At its regular meetings it is the intention to vary the proceedings with experiments pertaining to the art.

Adjourned to meet at the same place the first Tuesday in March.

Frederick C. Low,
Secretary.

NEW YORK CORRESPONDENCE.

The Photographic Section of the American Institute met on Tuesday evening, February 2d, 1869, Mr. H. T. Anthony, presiding.

Mr. C. W. Hull exhibited a set of the competing prints for your $50 prize; they were much admired and led to quite a spirited discussion upon their merits, some thinking them very fine, others holding a contrary opinion; such should have competed and sent better, is the writer's opinion. It is always far easier to criticize with blame than to produce better.

This little habit the writer freely confesses is one which he, like *a few* others, often indulges in, yet he does not hesitate to say that it would be better to do better and criticize less; greater progress and less talk would result.

Mr. Hull exhibited a new combination camera, designed by Mr. Flamming of the American Optical Co., for working a plate 5 x 8, either singly, for two cartes-de-visite, or stereoscopic size, with one of Stock's changing attachments for the dry process for eighteen plates. The division for the inside of the camera when used for stereoscopic work is most capital, being a movable folding attachment. In workmanship and elegance of proportion the work of this company is unequalled and cannot be bettered.

Mr. H. also presented for examination his new Dallmeyer rapid rectilinear lens, with several negatives, one of which was instantaneous. The lens is small and works remarkably well.

He also reported favorably upon the movable-front camera, described in my letter last month, and presented a print, which conclusively proved that the construction of the camera upon the plan invented by Mr. Flamming would accomplish the objects intended, and in that letter fully described.

Mr. Anthony presented two prints from coffee negatives, which led to quite a discussion upon this process. Mr. Roche, well known as the skilful photographer employed by the Messrs. Anthony in making landscape views, gave the following formula as the result of his experiments, and stated that the exposure was not to exceed one-half that required for the tannin; and that such plates are remarkably free from liability to fog.

Java Coffee (ground),	1	ounce.
Water,	12	"
Sugar (loaf),	½	"
Gum Arabic (best),	¼	"

Boil, and when cool, filter.

After washing the silver from the plate as usual, flow it twice with this decoction, and place it away to dry.

Mr. Newton read a paper entitled, "Experience with Various Dry Processes," which he has agreed to furnish for this number of the Journal, and to which I beg to refer those interested.*

Capt. A. J. Russell presented twelve very fine 10 x 13 prints of views on the Union Pacific Railroad, principally in Utah; the scenery is curious and remarkable, differing in all respects from any found upon the Atlantic coast; wild and grand as is the country, nothing is upon a small scale, the mountains are larger, and the stones appear to have attained proportions which would lead us to name them rocks. It is evident from these fine views that Utah is no half-way place, for among them is one of a Mormon cabin, outside of which sits the Mormon himself, having on each side two wives. Four more ugly-featured, ill-shapen specimens of the "gentler sex" I never wish to see; they looked like anything but "lovely woman." So far as the members expressed themselves, the writer feels safe in declaring that not one present coveted either the cabin, or the wives of the "saint."

Although the meeting was one of considerable interest to those present, yet the discussions were principally upon subjects so often talked over, and not presenting novel or original ideas, I will not repeat them, thus occupying far less of your valuable space than usual. C. W. H.

PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

The regular monthly meeting of the Society was held Wednesday evening, February 3d, 1869, the President, Mr. Frederic Graff, in the Chair. The minutes of the last meeting were read. Mr. Wenderoth objected to that part of the description of his pictures exhibited at the last meeting which reads: "and appears to be the most permanent form of all silver pictures." No silver was used in their preparation, the effect being produced by the action of the oxides of copper, manganese, and cobalt.

Messrs. Wenderoth and Tilghman also objected to the use of the word "encaustic" as applied to Mr. Wenderoth's burned-in photographs. After some discussion it was ordered by the society that the word "encaustic," as used to describe Mr. Wenderoth's pictures, be altered to the term

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* Mr. Newton's paper unfortunately reached us too late for this issue. It will appear in our next.—Ed.

"vitrified photographs." Not by reason of any incorrectness in the word encaustic, but the term vitrified photographs seemed to be more fitting, and is used in Germany to describe the burned-in porcelain picture. The minutes were then approved.

The report of the Committee upon Prize Photographs appointed at the last meeting was read as follows:

The Committee on Prize Photographs and presentation prints having considered the subject, advise that the Society offer to its members a prize of a silver medal for the best 4 x 4 portrait negative, also a similar prize for the best 4 x 4 landscape negative, and suggest for the portrait negative our worthy President, and for the landscape negative, Girard College. Both negatives and prints to be ready for examination at the regular monthly meeting in May next. Prints from each of the prize negatives to be properly mounted and sent to each member of the Society as presentation photographs for 1869.

S. Fisher Corlies,
Hugh Davids,
E. Draper.

Mr. Graff thanked the committee for the honor conferred, but declined it on account of pressing business engagements. One of the gentlemen upon the committee kindly consented to take his place.

The report as amended was accepted, and the committee continued, to report to the next meeting.

The Secretary was ordered to make application to the proper officers for authority to enter the grounds of Girard College for the purpose of photographing the building.

The resignation of Mr. John G. Hood was read and accepted.

Mr. Wenderoth showed a number of glass and porcelain pictures to illustrate the effect of gold toning upon silver prints on albumen films. The generally accepted idea in gold toning is that the gold is partially substituted for the silver. One of these plates, which had been subjected to a very great heat in a muffle, showed that the gold had acted on the whole surface of the plate uniformly, without special action to the silver, the color of the silver appearing yellow through the rose tint of the gold. Four other plates were exhibited, which had been subjected to the action of a very strong gold solution, but did not show any trace of gold after being exposed to the same heat as the former experiments.

Mr. Wenderoth exhibited a variety of prints made upon American paper not albumenized; this paper is very easy to tone, and possesses some advantages over foreign paper. The prints were 14 x 18, and much admired.

Mr. Wenderoth also offered a print from a negative made with a Steinheil lens No. 4. The subject, a portrait of exquisite sharpness, proved that the Steinheil lens has few equals in sharpness and depth of focus.

Mr. E. L. Wilson exhibited a fine specimen by the Woodbury process. Several excellent leaf photographs, made by Mr. Thomas Gaffield, of Boston. A capital 8 x 10 portrait, by Mr. W. F. Osler, of Philadelphia, made with No. 4 Steinheil lens. A portrait of M. Salomon, taken while in England by Messrs. Robinson and Cherrill. Also the prize picture of the London Photographic Society, "Watching the Lark," by the same artists.

Mr. Wilson also offered for examination a number of prints by the expedition sent to Aden, in Arabia, to photograph the solar eclipse. These pictures are of great interest to both photographers and astronomers.

Mr. Draper presented some very interesting cabinet pictures.

Mr. Browne stated that Mr. Zentmayer had kindly made for him an arrangement of diaphragm similar to that described by Mr. Sutton some months ago, and also by Mr. Lea in the last issue of this journal. Although but few trials had been made, they prove that the principle was of great value. Clouds were readily obtained which were impossible to produce with ordinary diaphragms. In one case a negative was exposed purposely thirty seconds, twice as long as required; upon developing, the clouds were found unimpaired by the over-exposure.

On motion, adjourned.

John C. Browne,
Recording Secretary.

OUR PICTURE.

Agreeable to our promise, we present this month another of the competing pictures for the $50 Prize, from negatives by Mr. J. H. Kent, Rochester, New York.

This picture was the greatest rival to Mr. Burnham's, and it was, after considerable deliberation, that the judges gave the prize as they did, so nearly equal in merit were the two pictures, according to their estimation. This is certainly full of photographic excellence, and well worthy of imitation The negatives are very perfect, and it has been the effort of the parties who made the prints, Messrs. Gihon & Jones, No. 812 Arch Street, Philadelphia, to do them full justice, for we know that they devoted much care to them. The prints were made on Ashton's albumen paper, the excellencies of which are well known to many of our readers, and fully verified by these prints.

We continue to print sets of the competing pictures, and furnish them, 23 in number, postpaid, at $3 per set.

We are preparing our plans to offer another prize, and shall probably announce it in our next number.

PHOTOGRAPHIC SUMMARY.

BY M. CAREY LEA.

FRANCE.

Carbon Tissue that Keeps.—M. Despaques has lately requested an examination of some carbon tissue, sensitized for use, which he placed in that condition five months before, in the hands of the Photographic Society of Paris. On examination by a committee appointed for that purpose, it was found to be still in excellent condition for use. The method is a secret.—*Moniteur.*

Test for Hyposulphite.—The English correspondent of the same Journal states that a German chemist named Werther, has discovered that the sesquichloride of ruthenium gives a purple reaction with hyposulphite of soda, and that I have proposed to use this test for the detection of hyposulphites. So far from this reaction (which is the best of all known tests for ruthenium), having been discovered in Germany, it was first found by me five years ago, and was published in *Silliman's Journal* for July, 1864.

Clouds.—Blanc remarks that a convenient method of printing in clouds, is to take a rough print of the landscape negative, then, after printing the negative in the usual way, put the print (which should have a white or nearly white sky), under the cloud-negative, then take the rough copy of the landscape negative, cut the sky out without taking particular pains to follow the outline, lay it on the outside of the sky negative, in which position it protects the landscape portion of the print underneath, and then proceed to make the prints in the shade. M. Blanc affirms that, managed in this way, the whole is little trouble, quickly done, and the dividing line cannot be detected.—*Bulletin de la Soc. Phot.*

Vitrified Photographs. — Duchemin affirms that vitrified photographs can be obtained with great facility, on that sort of opal glass that is "flashed" with arsenic glass. On this is placed a mixture of gum and water with bichromate of ammonia, which latter may be used in almost any proportion, from 7½ grains to the ounce up to 50 grains. After exposure and washing, the image is developed with—

Oxide of Cobalt, . .	10	parts.
Black Oxide Iron, . .	50	"
Minium, ...	100	"
Fine Sand (in very fine powder), . . .	30	"

This is brushed on and adheres to the unexposed* parts, and then the plate is burned in a muffle. The entire process, including the burning in, has been done in less than ten minutes.—*Corr. Br. Jour.*

UNITED STATES.

Saving Silver and Gold.—In the last number of this Journal, I see a review of the rather bold and sweeping claims of a patentee of a plan for saving silver, and I think most persons will agree with the Editor in thinking that these claims are put forth in a very insolent and irritating way.

It will be useful to inquire whether this system differs in any essential way, from one devised and used by Mr. W. A. Terry, spoken of by him in the *American Journal*, and quoted in the *British Journal* for 1867, at page 265.

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* A *positive* is, therefore, needed to print from.

A much more ingenious idea than that patented, seems to me to have been given to the public by Mr. J. C. Leake, as far back as 1865. It will be found in the *British Journal* for that year at page 585.

Pin-holes with Wet Plates.—According to Mr. Blanchard, when a bath is predisposed to form pin-holes, these are more troublesome with a collodion containing a large proportion of bromide than with one having less.—*Br. Jour.*

[If this is a fact, it is very curious; Mr. Blanchard is a most competent observer.]

WRINKLES AND DODGES.

Mr. Editor: On page 27, January No. 1869, I find Wrinkles so deep that I cannot see the bottom of them. Mr. Knowlton says: "Mix No. 1 and No. 2 equal parts for a good collodion." He also says: "If it works *too* intense, add a little more of No. 2, which is, iodide 6 parts, bromide 1 part; if proper contrast is not secured add a little more of No. 1—bromide 3 grains, to 5 of iodide."

I have photographed (made the first photograph in the State of Indiana) I think fourteen years, and I have always found the more iodide a collodion contained the more the contrast would be; therefore I think Mr. Knowlton is mistaken.

The more bromide, the less the contrast, and flatter the resulting negative. While he recommends 3 grains of bromide to 5 of iodide to make more contrast than 1 grain of bromide to 5 of iodide. Somebody is mistaken. If it is me, burn this; if not you are welcome to publish it.—P. Hawk, *Hamilton, Ohio.*

Mr. Hawk is right, and Mr. Knowlton has probably made a mistake by putting the cart before the horse, or else the printer has done so. He says: "If too intense add more of No. 2;" that would give excess of iodide, which produces contrast. No. 1 should be used to lessen contrast, and *vice versa.*—Ed.

Mr. Burnham's formulæ for negatives.

COLLODION.

Ether and Alcohol, . .	equal parts.
Iodide of Ammonium, .	5 grains.
Bromide of Potassium, .	3 " to the ounce.

Anthony's Negative Cotton, 1 oz. to 64 ounces of solution.

DEVELOPER.

Plain Iron, Acetic Acid, and Water.

FIXING SOLUTION.

Cyanide of Potassium, which I find for strong south light effects, better than anything else.

T. R. Burnham.

Long Fuming.—"I use a 35-grain silver bath (without ammonia), and float half a minute. I fume 10 hours, and to that I attribute all the excellence of my prints. The paper turns yellow from long fuming, but comes all right again in toning and fixing. I used to fume 20 minutes, but one night I forgot it, and left the paper in the fuming-box all night. I made prints upon it with such good results that I have practised it ever since."—John S. Moulton.

Patent Law.—All that was publicly known or in use before the application for a patent is ever public property. The patentee can use all such in conjunction with his own invention, but he acquires no exclusive right in anything but the new operations, and cannot in any way interfere with the public right to use the public stock of knowledge.

Preparation of Litmus-Paper.—I can recommend the following receipt: "Digest 20 grm. litmus with 100 c. c. water for some time, shaking occasionally; then fitler. To the filtrate add a slight excess of nitric acid, and boil; then neutralize exactly with potash. Now make a weak solution of gelatin, by boiling one part of isinglass with fifty parts of water; draw white blotting-paper through this, and hang it up to dry. When dry, paint one side with the above solution of litmus."—A. Vacher, *London Chemical News.*

Coating Large Plates.—We learn from the *Correspondenz*, that large plates are coated in the Imp. Mil. Inst. Vienna, in the following manner: They are clamped in a frame in the form of a cross, on a movable socket, and the collodion poured on in a zigzag or horseshoe stream from side to side, until near two or three inches from the end towards the operator, and then tipped so that the collodion will flow down and the superfluity caught in vessels. The plates are sensitized in a horizontal bath, and are developed in much the same way as they are collodionized.

Photographs on Eggs.—The old-time custom of ornamenting Easter eggs by boiling them in pieces of calico, onion shells, etc., etc., is about to be superseded by wonderful photography, it being possible to make beautiful photographs on egg-shells by the collodio-chloride or porcelain picture process. Try it by either of the formulæ in the last issue of our Journal. Select the eggs having the smoothest shells. The main difficulty is in printing. Remember Columbus.—Ed.

If landscape photographers would furnish themselves with double dark slides, and when taking a view, expose the first plate, say two or three seconds to get the clouds, then turn the dark slide quickly around and expose the other plate for the landscape, and use the two negatives in printing, very good effects might be obtained often, as well as clouds more suitable for the landscape than those that are often used.—George Hooper, *in British Journal.*

SALAD

For the Photographer.

Lea's Manual, fresh lot, is ready.

The National Photographic Association grows finely. Join it.

"How to Paint Photographs." New Book now ready. $1.25, postpaid.

A few 1866 and 1867 *Mosaics* left. Full of excellent matter, fresh as when written.

M. Braun, in Dornach, has enlarged his facilities for carbon printing.

"Strike high, and do not believe in failure. Work incessantly and rightly, and good work will be the result."—H. P. Robinson.

A Hamburg firm have adopted carbon printing. Strange carbon printing is not popular here.

The *British Journal* says: "There are photographers who walk on stilts in this country, as well as in America."

"How long does it take to get your photograph after leaving your measure?" says a promising English damsel.

A Cheerful Sign.—*Inquirists* frequently send us a postage stamp to pay postage on return answer. Short letters get answered the soonest.

Photographs in tombstones are discussed in England. Hundreds of them may be seen in our cemeteries—and some *not* seen, having faded.

Herr Friederich V. Voigtlander, the optician, has just had the decoration of officer of the Order of the Medjidie, conferred upon him by the Sultan.

A fine photographic exhibition has recently been held in Hamburg. Thirty-two silver and sixty bronze medals, besides many honorable mentions, were awarded.

An English photographer wants others to keep their "little dodges" to themselves, lest "the world" find out the tricks of the trade. He is wrong. Help and be helped.

To obtain the desired effect from permanganate of potash, it should remain in the silver solution several hours, until the organic matter is precipitated.

They have a new toning salt in France called *Sel Encausse.*

A Photographer in Columbia, South Carolina, was recently burned out, and we are informed on good authority, that there is a good opening there "for a young man skilful in his work, whose charges would be fair." There is a large theological seminary there.

The carbon process is reviving. Some excellent German tissue is now advertised, we see, of various colors, and we recommend that those who are not in possession of it, should buy the *American Carbon Manual*, and proceed to see who can present the best example at the June Exhibition.

Editor's Table.

THE NATIONAL.—The interest in the National Association is beginning to grow more and more intense. The Treasurer reports a very promising list of new members; the Boston people are busy making their preparations for a grand exhibition on a large scale; the bulletin from the Executive Committee, on our first page, *looks like business;* the "Bureau of Information" is practically at work and doing good; the applications for copies of the Constitution are coming in thick, showing interest in the matter, and *everything* looks bright and cheerful for the eminent success of the undertaking. Our valued friend and contributor, Mr. Simpson, gives us words of good cheer and encouragement in his *notes* this month.

Letters of acceptance and good wishes have been received from L. M. Rutherfurd, Esq., H. J. Newton, Esq., L. R. Cheeseman, Esq., and others, who were elected officers or honorary members; and, already some of the members are feeling the benefits of belonging to the Association. One of them writes:

"I desire to express my joy in the defeat of the bromide patent. It is for this and other reasons, that I wish, at this *early day*, to find a home with this Association of brethren in the art of photography."

We hope his example will be *early* followed by thousands. Remember, you can become a member at less cost *now* than after June. Join *now*. Make up your mind *now* to go to the Exhibition and meeting. Begin to prepare examples to send *now*. Do all you can *now* to swell the strength and prosper the Association, for it will be greatly beneficial to *all of you*, when fully organized in all its departments.

PHOTOGRAPHS OF THE ECLIPSE.—Dr Vogel has kindly favored us with a series of views from the four negatives made, under his superintendence, by the North German Expedition, of the total eclipse of the sun in August last, and which occasion he so graphically described in our last October issue. They are most interesting and wonderful, and a great triumph of photography. Their successful taking was due to the invincibility and energy of Dr. Vogel, to whom the scientific world is greatly indebted. He and his co-workers rehearsed their parts thoroughly previous to leaving Berlin, and again after placing their apparatus at Aden, so that, when the time came, everything worked smoothly, and the only successful photographs taken on the line of the eclipse, were secured. The prints are about two by three and a half inches, and are enlarged three and a half times the size of the negatives. Two of them show the wonderful protuberances on the upper, and two the illumination on the lower, surface of the sun. As Professor Morton, on another page, has contributed an article on the subject, we shall not repeat here. The pictures of the eclipse are accompanied by one of the sun taken a few moments after totality, showing it like a silvery crescent, partly beclouded; an interior view of the bungalow, with the four members of the Expedition represented taking the views of the eclipse; a view of the exterior of the cane bungalow and the observatory; a view of Aden, and several other interesting and excellent views of surrounding scenery, accompany the above.

Dr. Vogel has our warmest congratulations on his success, and we trust our American photographers will not be behind him in securing photographs of the eclipse visible in various parts of our country in August next Let every available telescope be put to use, on that occasion, by practical and skilled artists.

MR. F. A. WENDEROTH of our city has shown us some admirable prints made upon ordinary hard calendered book paper, prepared by a process peculiar to himself, which are very fine and beautiful, both in tone, detail, and softness. They are fully equal to any plain paper prints we have ever seen. Any desired tone can be secured; the best of surfaces is obtained for coloring, and the paper can be more cheaply furnished than plain Saxe paper unsalted. We shall have more to say upon the subject soon than space will now allow. Mr. Wenderoth will prepare his paper for the trade, we understand.

WE have received Mr. Newton's paper alluded to by our New York correspondent, Scattered Rays, by David Duman, Esq., and an interesting communication from "Agatha," too late for our current issue. Several other valuable and interesting articles are also necessarily laid over, so great is the crowd upon our columns. We regret that our pages contain so little of what we want to get in them.

WE have been shown a very useful filter for water, baths, etc., also readily applied to emptying a bath during filtration, which is the invention of Mr. Outerbridge. It works admirably, and is very cheap. A bath may soon be emptied by it without the risk of spilling in pouring, and impure water quickly made entirely pure. See SPECIALTIES.

"THE OPHTHALMOS," an automatic camera for taking topographic and hydrographic views from considerable heights above the earth's surface, is the invention of Rev. John A. Scott, of Virginia. We shall endeavor to describe it more fully in our next issue.

MR. RICHARD WALZL, 103 West Baltimore Street, Baltimore, Maryland, has favored us with a pretty little printed manual of instructions to visitors to a photograph gallery, as to dress, behavior, etc., which will be found useful to that *annoying* class of people. It is accompanied by a view of his new marble building.

MR. HENRY MERZ, New York, has favored us with a number of the composition photographs spoken of by our New York correspondent in his February letter. They are mostly managed with great care and good taste, though hardly in as good taste, we think, as painted backgrounds, those in the present instance being backgrounds printed in from lithographs or engravings. To our taste they are greatly surpassed by some elegant whole-size prints of the Salomon style. One called "Ben Akibi," representing an old Rabbi studying, is a fine work of art, an excellent subject finely treated. Another, "Evening Prayer," is also fine in conception and execution, representing a female, elegantly clad, kneeling before a crucifix. A little more earnestness in the face of the subject would have been better; the photography, manipulation, lighting, printing, tone, everything is fine. A composition picture, called "The Little Emigrants," is also very finely executed. We want to secure it, or "Ben Akibi," for our Journal. Such photography is refreshing. Mr. Charles Ernest Kreuger, operator with Mr. Merz, sends us some photographs of persons in fanciful positions, secured by the use of his many-jointed rest, which appears to be very useful.

ERRATA.—In Mr. Gutekunst's toning formula, in "Our Picture" last month, an error was made as to quantity. The formula should read, viz.: Chloride of Gold (Magee's), 12 grains; Table Salt, 2 drachms; Water, 1 gallon; Bicarbonate of Soda, sufficient to neutralize.

In Mr. H. Noss's paper in "Wrinkles and Dodges," last issue, read *forty-five minutes*, instead of "four or five." The acid should be renewed when weakened by the moisture it absorbs.

THE Toronto, Canada, photographers held a meeting on the 11th of February, for the purpose of organizing a Photographic Society, their first object being to effect an advance on prices, cartes-de-visite being offered there as low as 50 cents per dozen. The meeting was largely attended, and great earnestness prevailed. A committee was appointed to form a scale of prices, to report at the next meeting. We shall regularly receive their minutes, and wish them success in all their efforts to elevate themselves, their prices, and *our* art. We have a large circulation in Canada.

THE EMPLOYMENT BUREAU.—We shall be glad to have the membership of "The N. P. A." keep us informed when they are in need of operators or situations, the Employment Bureau, or Bureau of Information, now being in working order.

THE British Journal Photographic Almanac for 1869. Edited by J. T. Taylor. E. & H. T. Anthony & Co., agents, 591 Broadway, N. Y. 50 cents. We have received this, too late for making extracts this month, but a hasty glance shows a mine of good and useful matter, worth far more than the price of it. The frontispiece is a "Photo-electric engraving" of Adam Salomon. A more wretched picture by any process could hardly be conceived. It is a perfect example of badness, and a libel on the beautiful photograph from which it was taken, a copy of which we have. The talented subject is made to look like a black-hearted brigand, and there is not the least speck of merit about the picture. Do, Mr. Dallas, please redeem your character by putting out something better, soon, by your process, or take "P-h-o-t-o" from its title.

THE YEAR-BOOK OF PHOTOGRAPHY, 1869. Edited by G. Wharton Simpson, A.M., is also at hand. This annual favorite is full and overflowing with interesting, practical, and useful matter, as usual. The editor seems to have secured a short paper from almost all the leading practical men in Great Britain, together with an article from M. Adam Salomon on "Art in Photography." One can scarcely lay the book down after beginning it, until it is all read. Defects and remedies, and wrinkles and dodges, and hints and suggestions, and items for practice, overflow, and *all good*. Moreover, it is so cheap every one can possess it. We are expecting 1000 copies by the coming steamer, and will mail them to our readers for fifty cents each. We shall review both these annuals more fully again.

SEVERAL of our agents, who are also dealers in stock, offer our Journal, and other publications, as premiums for buying of them. Among these are Messrs. R. Walzl, Baltimore, and C. S. Montague & Co., Kalamazoo, Michigan. These gentlemen certainly show praiseworthy enterprise, and, at the same time, pay a compliment to our publications. All success to them.

Leaf Prints.—Mr. Thomas Gaffield, whose interesting paper appears on another page, has favored us with some exquisite examples of leaf and fern prints, arranged in wreaths, crosses, etc., etc., which exceed anything of their kind. He has shown, in one of them, the effect of sunlight upon silvered paper, through different colored leaves, such as orange, red, green, yellow, etc., which is very interesting. Mr. Gaffield's beautiful results should awaken a new interest in this beautiful branch of our art, so ably treated upon by Professor Himes, in his "Leaf Prints," published by Benerman & Wilson, with a specimen print.

More names wanted of those who do not take the *Philadelphia Photographer.* We will be greatly obliged to any of our subscribers who may take the trouble to send us such lists. We want to reach every photographer in the land with *our* Journal.

Mr. H. Noss, New Brighton, Pa., has sent us some well-taken stereoscopic pictures of some snow views, and also some carte groups, all made with the "Imitation Dallmeyer Lenses." He finds the lenses equally fine for either out or indoor work, and very handy to have about. His American Optical Co. stereo box, he says, is "a perfect piece of mechanism," and he thanks his stockdealer for sending him "such a box!" Good goods are always the cheapest.

Mr. F. B. Gage, St. Johnsbury, Vermont, has sent us a number of stereos of snow scenes, from dry plates, which are exceedingly fine. Although such subjects are a very hard test for that process, there is not a harsh spot in any one of these. They are admirable in every way. "The Model Snow-storm" is very peculiar-looking, as if a blinding storm was going on, hiding almost every object, and yet, in the stereoscope, the effect is fine and beautiful.

Mr. H. W. Boozer, Grand Rapids, Michigan, has opened a fine new gallery, and has sent us some very pretty cabinet portraits made under his new light. We should judge it to be an excellent one, and in good hands.

Messrs. J. Gurney & Son, 707 Broadway, New York, are doing more to popularize the new cabinet size than any one in this country. Their beautiful pictures of public characters are scattered over the land broadcast. Some of their recent examples are before us, the perfection (almost) of plain photography. They remove, in April, to their new grand apartments, corner 5th Avenue and 16th Streets.

Mr. E. Klauber, Louisville, Kentucky, has sent us several large views of the new bridge at that place, taken during the several stages of its construction. The views are carefully selected and interesting.

Mr. D. T. Burrell, Bridgewater, Massachusetts, has made some fine views of "Daniel Webster's Mansion, at Marshfield," copies of which are before us.

Photographic Book-Marks.—These consist of a strip of card-board, say 1¾ x 5 inches, on which are mounted the photographs of the members of the family. A ribbon is attached to one end, the whole making a very pleasing book-mark. The example before us is from Mr. R. Goebel, St. Charles, Missouri, who is, we believe, the originator of that novelty in the art. It is certainly very pretty.

Mr. J. W. Love, Portage City, Wisconsin, desires to ship a large number of negatives abroad. Can any one tell him the best method of packing them to insure safe carriage?

Boston at Work.—We are glad to see that our Boston friends have formed a society, which we trust will grow, and flourish, and prosper.

It is started under a good leadership, and in the right spirit. We are personally acquainted with all the officers elect but one, and there alone is material enough for a fine society. So mote it be.

Mr. Albert Moore, formerly of the firm of Simmons & Moore, announces in his advertisement that he will soon open a new and extensive establishment for solar printing for the trade. A visit to his place of business on a clear day gives one a most imposing sight. There stand from fifteen to twenty huge direct-printing solar cameras, with their one bright eagle eye fixed upon the sun, and their attendants dodging here and there among them, while the sensitive sheets within their ponderous bodies are being impressed with the images of as many human beings. It reminds one of so many great birds of horrible shape watching the skies for prey. Mr. Moore's work is first-class.

M. Mead.—You can secure more intensity by using more ether and less bromide—say 1 grain to the ounce. Also try a different cotton, and strengthen your silver solution.

Boston Public Library

THE

Philadelphia Photographer.

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By BENERMAN & WILSON,
In the Clerk's office of the District Court of the United States for the Eastern District of Pennsylvania.

THE NATIONAL EXHIBITION.

The Executive Committee of the *National Photographic Association* again direct the attention of those who propose to send articles for exhibition, to the following

RULES OF THE EXHIBITION.

The Exhibition will open June 1st, 1869. All applications for space must be sent to the Local Secretary before April 20th, 1869.

Articles for exhibition must be sent, *freight prepaid*, addressed, "National Photographic Exhibition, care G. H. Loomis, Boston, Massachusetts," between 1st and 20th of May. None received after the latter date.

A List of Articles should accompany each package, and a duplicate list be sent per mail to the Local Secretary.

All pictures, except those from foreign countries, should be framed. With foreign exhibitors it is optional. Exhibitors should put their names on their pictures.

Exhibitors, wishing to dispose of their productions, will send full particulars, together with their list, to the Secretary.

All articles will be submitted to a jury for admission.

No articles shall be withdrawn until the close of the exhibition.

Articles sent will be unboxed, placed, and re-boxed without expense to exhibitors, unless stipulations to the contrary be made with the exhibitor.

As numerous applications for space, both from this and foreign countries, have already been made, it is desirable, as the space is limited, that others make their applications at as *early* a day as possible, though effort will be made to accommodate all applicants.

All applications for space must specify the class of articles, and the amount and kind of space required, whether *floor* or *wall* room, and be addressed to

G. H. Loomis,
Local Secretary,
No. 7 Tremont Row,
Boston, Mass.

By order of the Executive Committee.

THE COFFEE DRY PLATE.

BY PROFESSOR JOHN TOWLER, M.D.

(Continued from page 58.)

STOCK SOLUTIONS OF COFFEE AND SUGAR.

No. 1. *Coffee Solution.*

Water (rain), ...	60 ounces.
Coffee, roasted and ground, .	4½ "

Boil the water, then add the coffee, and boil again for five minutes, and, when cold, filter the decoction; the quantity, when filtered, will be about thirty ounces. Keep the coffee solution in a stoppered bottle.

No. 2. Sugar Solution.

Water,	15 ounces.
Refined (loaf) Sugar,	2¼ "

Filter the solution and keep it in a stoppered bottle for use.

Why do you not keep the two solutions together in the same bottle?

Because saccharine solutions, containing organic matter, ferment, and first become wine, and then vinegar.

For present use, make the following mixture:

Coffee Solution,	4 drachms.
Sugar Solution,	2 "

Mix intimately, and then pour sufficient of this solution upon the plate, previously sensitized and washed, as to cover the film well; tilt the plate so as to move the solution from end to end and from side to side over the film for about a minute; finally, allow the plate to drain, and rear it away to dry on blotting-paper in a place where there is no dust and no light. During the summer season, spontaneous drying I find to be quite sufficient; but there is certainly an advantage to dry the film by artificial heat, that is, before a hot stove or by steam. We have a contrivance by which the plates are dried by steam. At this stage, the film has a fine polish as if varnished. The plates are now stored away in the changing-box for use on an excursion, either of pleasure or of business.

EXPOSURE.

You have to study the working properties of your lenses before you can ascertain the length of exposure to be given under given circumstances; and this must be done before you can reasonably hope for any success in any excursion. As a general thing, you will fail unless you make this preliminary investigation. Above all things, do not be persuaded to make short exposures; if your lens, with a given stop and a given light, will produce a picture by the wet process in ten seconds, expose your dry plate two minutes, that is, twelve times the length of time as for the wet plate.

DEVELOPMENT.

The development of a dry plate has always been regarded a tedious and critical operation, and one requiring considerable patience. With this process, as well as with the collodio-albumen process, where the exposure has been about right, there is little or no trouble; the development begins slowly, and proceeds gradually until the picture is complete; the operation is certain; you can get twelve good negatives out of twelve prepared plates, if you have done all the work up to the development accurately and carefully, and with proper materials. Intensification, too, with pyrogallic acid and silver solution, is not required; the developer is all-sufficient. From the facility of development, however, you must guard against too much intensity, for the tone of the negative is somewhat non-actinic, and might mislead one not accustomed to such plates to carry on the development too long. It is almost a matter of indifference which of the two developers you employ, the ferro-nitro-gelatine, or Colonel Baratti's ferro-cupro-saccharine developer. I prefer the latter.

DEVELOPER.

Double Sulphate of Iron and Ammonia,	1 ounce.
Sulphate of Copper,	1 "
Loaf Sugar,	1 "
Citric Acid,	2 ounces.
Water,	40 "

Pulverize the salts, sugar, and acid, and dissolve them in the water; then filter and preserve for use.

When about to develop the picture on the exposed plate, pour a sufficient quantity into a vial, and place it in readiness. The plate is next immersed in filtered rain-water or in distilled water, until the collodion film is moistened all over; let the plate drain a moment, and then pour over it the developer from the vial, and move it backwards and forwards until the whole surface is thoroughly impregnated with it; return it now to the vial and add two or three drops of the bath solution to it. With this solution, which is the developer proper, or which contains the silver dust ready to be precipitated on the actinic impression, you now proceed to pour backwards and forwards upon the film until the desired intensity is obtained. It is very possible you may have to add more of the silver solution as you proceed; but be cautious, add very sparingly, for, with an excess of silver, the negative will be granular. When I develop the plates on the ground, I perform the operation in the little dark chamber represented in Number 56 of this Journal. This tent is very light, folds together, lies flat, and occupies but a small space. A single individual can easily carry the camera, changing-box, tripods, tent, and chemicals; and, in this way, he is sure of getting a stock of good negatives. The development, however, can be postponed until evening, and in this case it is not necessary to carry the tent and the chemicals.

FIXING.

The plates are thoroughly washed, and then fixed in either of the ordinary fixing solutions,—hyposulphite of soda or cyanide of potassium. I prefer the former. Wash again thoroughly, dry, and varnish.

How long will these dry plates remain sensitive after preparation?

I cannot tell; but, from my general experience in dry plates, it is my practice to prepare fresh plates each evening for the next day's operation; by observing this rule the results are always good and certain. I have found the plates reliable after the lapse of several days, and even weeks, but not to the same extent nor with the same certainty, some plates having failed. In winter I would certainly not trust them over a day or two; and at this season the plates must be dried by artificial heat.

Why do you prefer Colonel Baratti's coffee process to England's collodio-albumen process?

Because the plates are more easily prepared.

Why do you prefer this dry process to the wet process for landscape photography?

Because the process is as certain as the wet process, and the development is *more under control;* furthermore, the negatives are neater, cleaner, and more beautiful.

But you cannot take instantaneous pictures by this dry process?

Nor can you in ninety-nine cases out of a hundred with the wet process. In all the ravines and glens that I have visited, as well as in the open landscape covered with verdure, the instantaneous process cannot be applied. At Niagara Falls the instantaneous wet process is absolutely required in order to get crisp outlines of the Falls and of the spray; but, in every picture thus taken, the verdure is a black mass without detail. The instantaneous landscape photograph is never perfect; therefore never trouble your head about instantaneity; expose long enough and get good pictures.

PRACTICAL NOTES ON PHOTOGRAPHIC SUBJECTS.

BY G. WHARTON SIMPSON, M.A.

Tinted Papers for Photographs.—I have read with interest the account in the *Photographer* of the new style in portraiture which appears to have become a fashion in the United States. I refer to the use of tinted papers, or of a method of tinting or toning the paper after finishing the print. Curiously enough, as if by a simultaneous impulse, an attempt is made by some to introduce a similar style here; but as yet it has not made much headway. I think there is a traceable cause for this slow progress, the mention of which may be instructive. The attempt in this country has to contend with the memory of a former failure. Some years ago tinted papers were introduced here; but they soon fell into discredit and disuse from two causes: first, the tints were unsuitable and in bad taste; and second, the colors employed were fugitive and quickly faded. The tints employed at the time to which I refer were chiefly rose-color, green, and lavender. A delicate rose-tint was not unpleasing in some prints, but this was the color which most rapidly faded. The other tints were, however, most offensive and unsatisfactory. What could be more unpleasing than a face with a general tint of delicate green or lavender?

The method of tinting or dyeing the print after it is produced was also tried, and met with more favor, but did not come into very general use. I produced some very pretty results analogous to the "*aux deux cray-*

ons," by a very simple method which I have not seen described. Intending to dye the prints to a very delicate light brown, or straw tint, not much deeper than an "India tint," I make a dilute solution of a brown aniline dye, upon which the print was floated as it would be on a silver bath Before bringing it into contact with the dye, however, I protected the highest lights, or any points I wished to appear white, with wax. A little beeswax was melted and applied with the point of a sable pencil to lace linen, a sharp light on the face or dress, and sometimes on the eye. It is not difficult with a firm elastic pencil and hot wax to make the markings quite clean and sharp. When the wax is set, which is almost immediately, the print is floated on the dye solution, and allowed to remain until the tint is deep enough. When dry the wax is easily removed, and the portions which it protected are found to be clean, sharp, white touches, the wax acting as a perfect resistant. The same result can be produced on a mounted picture by applying the dye with a broad camel's-hair brush, or a sponge. A most important thing to remember in applying tints in this way to photographs, is the importance of avoiding positive colors of any kind; delicate tints of drab, or gray, or brown, may be employed with success; but an approach to a pure color, such as red, blue, yellow, or green, however delicate, at once gives a common and vulgar effect, reducing the portrait from pictorial art to decorative work.

New Style of Portraiture.—Mr. Sarony has just introduced in this country, and patented, a new and very effective style of portraiture, giving the appearance of very high artistic finish, by a cheap and easy process. It has the appearance of a clever vignetted chalk drawing on a tinted drawing-board. In reality there is no touch of the pencil employed at all. On dissecting the picture in order to examine the combined agency whereby such a striking effect is produced, the image is found to consist of a thin vignette transparency suitably toned; this is laid upon a piece of tinted drawing-paper, upon which has been produced, either by hand-drawing or lithography, a graduate vignette design, cleverly hatched to break the outline of the image, and cause it to merge into the background. There is a central blank for the head, of course. When the transparency is laid down on this piece of masterly hatching, the blending is so complete that it is difficult to believe that the whole picture is not highly finished in crayon. At present this style has been confined by Mr. Sarony to simple vignettes on 14 x 12 plates; but I can conceive its extended application to other designs for backgrounds, with transparent positives on glass placed thereon, and producing very capital results.

Carbonate of Silver Paper.—I have recently been trying some of the "carbonate of silver paper," introduced by Messrs. Schaeffner & Mohr. This is another of the recently multiplying facilities for keeping prepared paper ready for use, without the need of daily recourse to the silver bath. The paper, which has the appearance of ordinary albumenized paper, is sent out silvered, and can be kept indefinitely, it is stated, without injury. When exposed to light, as sent out, it is found to be very insensitive, many hours of exposure to strong sunshine producing only a light brown tint. When the paper is fumed, however, it becomes very sensitive. It is best to fume both the paper and the pads which are placed behind it in the printing-frame. It prints then in about the same time as ordinary albumenized paper, and gives very similar results, being toned and fixed in the usual manner. Its chief advantage over Carrier's permanent sensitive paper, consists in the fact, that it gives a more vigorous image; being in this respect not inferior to freshly-excited albumenized paper. The method of preparing the paper is not made public, but I have a strong suspicion that ordinary salted and albumenized paper is employed, excited with the solar bath in the usual manner; but instead of leaving on and in the paper a certain amount of free nitrate of silver, the sheet is finally floated on a solution of carbonate, and the final traces of nitrate thus converted into carbonate of silver. It would be difficult to prepare the paper with a carbonate in the albumen in the way in which a chloride is employed in the albumen, because the soluble carbonates generally have a powerful action on albumen, rendering it so limpid that it would be difficult to obtain a good surface in albumenizing the paper.

Retouching Negatives with Cyanide.—A good deal has been written on the retouching of negatives with pencil or pigment to improve the lights; but little has been written, because little has been attempted, in relation to retouching in the shadows or transparent parts. It is much more easy to increase the density of some portion of a negative than to decrease it, or to remove some part of the deposit. Sometimes a black line is put in by scratching with the point of a needle, but rarely with any degree of success, the slightest attempt to use the needle generally producing a crude line, detected in a moment by its want of harmony with other portions of the negative. The difficulty of using cyanide has been greater still, because of the absorbent nature of the film of collodion, which has caused the cyanide solution rapidly to spread, covering and acting upon a much larger area than was intended. This has made it almost impossible to produce a sharp line by the action of cyanide. Mr. Lake Price speaks of applying cyanide on the point of a fine pencil, to the pupil of the eye, in a portrait, to make it more transparent, and so produce, in the print, a brighter, blacker eye. But I have found that cyanide, so applied, was very apt to overrun, not only the pupil, but the iris, marring all the form and detail by its spreading tendency. In some recent experiments I have been able quite to overcome this difficulty. Instead of working with cyanide simply, I take a moderately thick solution of gum Arabic, and to this add some strong cyanide solution. With this I find I can apply the sharpest touches without risk of the cyanide spreading. It is kept free from the slightest tendency to spread by the action of the mucilage; and as its action is also modified, being somewhat less vigorous, it is more perfectly under control. The touches of gum and cyanide can be deliberately applied, and left for a few seconds, the amount of action being carefully watched. When the result is attained, or very nearly, the plate is rapidly and vigorously flushed with water, to remove, as quickly as possible, all traces of the cyanide, and prevent further action. Not only may lines be strengthened, but, on emergency, stains removed, and many other modifications made in a negative by a judicious use of the power thus indicated.

Nitrate of Baryta in the Negative Bath.—Some time ago, my friend, Dr. Vogel, having found that the presence of traces of sulphate of silver in the nitrate bath was an occasional cause of pin-holes, recommended for its removal the addition to the bath of a little nitrate of baryta, which, by double decomposition with the sulphate of silver, would form nitrate of silver and sulphate of baryta, and, the latter being insoluble, would be precipitated, and could then be removed by filtration. A curious illustration of the danger of adding excess of nitrate of baryta, was recently brought under my attention. An English photographer, suspecting the presence of sulphate of silver in his nitrate bath, added nitrate of baryta freely, believing that excess could do no harm. On next trying his bath, he met with a singular kind of fog. The image, which, in development, looked vigorous and solid, came out of the fixing bath thin and meagre, and covered with a misty veil of white deposit. On a little reflection, he discovered the cause: the nitrate of baryta present in the free nitrate of silver on the plate, had been decomposed by the sulphate of iron developer, and precipitated on the plate as a fine, but firmly adherent deposit of sulphate of baryta.

Rapid Development Printing Process.—The following was recently described to me by my friend, Lieutenant Waterhouse, as one of the rapidest and most economical development-printing processes he had seen in operation. It is used in the Belgian War Office instead of photolithography for printing reductions of maps, plans, etc. It yields crisp, well-marked prints with pure whites and deep blacks. The details are as follows:

Thin Steinbach-Saxe paper is salted by floating it for one minute on a solution composed of—

Chloride of Ammonium, .	2 parts.
Citrate of Soda, ...	2 "
Water, ...	100 "

Sufficient citric acid should be added to make the solution just acid. The paper is then dried, and may be kept for use.

To sensitize it, float for three minutes on a bath containing four or five per cent. of nitrate of silver rendered acid with citric acid. This operation and the drying must be performed in a perfectly non-actinic light, as the paper is very sensitive.

The exposure under the negative varies from a few seconds to one or two minutes, according to circumstances.

When the prints are ready, they are developed as follows:

Prepare stock solutions of—

A.

Acetate of Lead,	1 part.
Water,	100 parts.

B.

Gallic Acid,	1 part.
Alcohol,	8 parts.

To 4000 parts of water, 50 parts of solution A, and 8 parts of solution B are added (if the weather is warm, or the prints have been over-exposed, a little acetic acid may be added with advantage), and the mixture is filtered into a large dish. The prints are immersed one by one, and constantly moved about, to insure the even action of the solution. The detail gradually strengthens, and, after about a quarter of an hour, appears of a good black color. They are then removed to a bath of hyposulphite of soda at 30 per cent., and remain in it with constant movement for ten minutes or a quarter of an hour, and are then well washed with several changes of water. No toning is necessary, but, if required, the prints can be toned in the ordinary way; but in that case they must be well washed after removal from the gallic acid bath.

STEPPING STONES OVER ROUGH PLACES.

I.

BY GEO. H. FENNEMORE.

In your February issue, in an article on the porcelain picture, I volunteered to answer any questions through your Journal that might be put to me by those who might not have fully comprehended me. This has led some of my brethren of the camera to ask me some questions upon *other* branches of the photographic art, which I will cheerfully answer to the best of my ability, trusting they may also be beneficial to many of the less experienced among the fraternity. I propose to do so from time to time, with such other hints as may be of use to them, under the title of "Stepping Stones over Rough Places."

One gentleman says: "We have had such a mild, damp winter, that I have been very much troubled with my paper, which in fine weather prints a fine purple tone, but in damp weather prints a disagreeable brick-red tone, at the same time turning very yellow, and is extremely hard to tone. Can you tell me a remedy for it?" The remedy is simply to know the cause. When a sheet of paper is floated on a solution of nitrate of silver, we have silver in presence of, and combined with, organic matter. This, when perfectly dry and kept in the dark, will keep for a long time without appreciable decomposition, but, in contact with moisture, decomposition goes on more rapidly, and still more so by the aid of heat, whether solar or artificial, the paper turning yellow from the oxidation of the silver. Different organic matters decompose silver more or less rapidly according to their nature. For instance, pyrogallic acid is one of the most rapid decomposers of nitrate of silver we have in the photographic studio, and yet crystals of silver and pyrogallic acid, if perfectly desiccated, can be mixed together, and will keep a long time without decomposition, if sealed up air-tight. But add but a few drops of water, and in one minute you have a black mass of decomposed silver. It follows then, that to keep paper white we must keep it dry, or, at least, as dry as the means at our command will permit. The reason your prints are so red in damp weather is owing to the influences of the organic matter contained in the paper, and their action upon the free nitrate of silver, for the chloride of silver, when acted upon by light, is a violet color, and, if exposed long enough, finally becomes black. Albuminate of silver, on the contrary, prints a cherry-red color, as do most of the gelatinous salts of silver formed in combination with the sizing of the paper. Finally, chloride of silver is much more sensitive to the action of light than either the albuminate, citrate, or gelatinate; also that paper is much more opaque when dry than when moist. If, then, we expose a print on a clear fine day, it prints quick, and the impression does not sink very deep into the paper; the print thus produced is principally a chloride of silver print, and assumes more of the violet color, slightly modified by the reduction of the albuminate. But when it is exposed on a damp, cloudy day, the printing is much slower, the paper becomes damp and semi-transparent, the light, consequently, penetrates deeper into the paper, thereby strongly reducing the organic salts of silver, which print red, before the feeble light has had power to penetrate the opaque parts of the negative, the resulting prints having strong contrasts and a foxy brown tone. For this reason paper when damp prints much stronger than when perfectly dry, and this is a very useful hint. When the weather is very dry do not perfectly desiccate the paper, but when the weather is damp, the paper should be dried before a fire or in a drying-box, as it will afterwards absorb sufficient moisture. The question then arises: How shall we keep paper in the best state of preservation during damp and hot weather?

My plan, and I think it very good, is as follows: I have a tin box with a false bottom perforated with holes; in the bottom of the box is an 8 x 10 porcelain dish containing chloride of calcium. The paper should not be silvered a second longer than necessary to produce the desired result; it should be hung up in a warm, but not too hot a drying-box, and perfectly dried. It should then be put in the chloride of calcium box, and kept in a dry place until wanted for use. I have two sets of pads for my printing frames, made of thick felt used by piano makers. One set of these pads I steep in a saturated solution of chloride of calcium, and dry. In damp or warm, muggy weather, I dry the calcium pads perfectly in the drying-box, and make them quite hot to expel all damp. The paper is now put in the printing-frame, a piece of clean paper is placed over it, and finally, the calcium pad, which by this time is cool. The print is exposed and put back in one side of the box till time to tone. In very dry weather, I simply use the calcium pads without drying. In that state they are slightly damp from the absorption of moisture by the calcium. I am seldom, therefore, troubled with yellow paper, and it is only occasionally that I have to use the pads at all, the box being generally sufficient. The pads containing the chloride will last a long time. They should be kept in a box by themselves, and should always have a piece of paper between them and the sensitive paper.

Another party, signing himself "A Subscriber," asks the following questions:

1st. "What is the best treatment for a negative bath that works with pin-holes?"

2d. "How to keep a bath in good working order for the greatest length of time?"

3d. "What developer do you consider best for negatives?"

These questions are rather hard to answer, as all good photographers have their own ideas as to what formulæ are the best, and he would be a bold man that would say that his or any other particular plan is the best. I can, however, give my own plan of working, which, in my hands, gives excellent results:

1st. The treatment of the bath for pin-holes, is to dilute the solution with an equal bulk of water. But, in my experience, I have found that this is not always a remedy for any length of time. For a comparatively new bath, that amount or even *less* of water, will answer the purpose. But when a bath becomes old and overworked, it appears to acquire the power of accumulating a large amount of iodo-nitrate of silver, which requires much water to bring it to subjection. I have seen solutions that gave plates full of pin-holes, and, when held down, the surface looked like a piece of sand-paper. Such a solution, diluted with one-half its bulk of water, would scarcely show turbidity, and would not benefit the bath for more than a day or so. Again, old silver solutions, unlike other solutions, deposit more of these crystals when at a high temperature than at a low one. In winter, therefore, when the water is cold, its effect is lessened by its lowering the temperature of the solution. The plan, therefore, that I have found most serviceable, is to dilute the bath with four or five times its volume of water, the temperature of which has been raised to about 90° to 100° Fahrenheit. This throws down a dense, whitish-yellow precipitate, which is easily filtered out. When filtered clear, it is evaporated to fusion, redissolved in distilled water, and filtered. It has now an alkaline reaction on red litmus paper. Chemically pure nitric acid must be added until blue litmus paper turns slowly red. If it is the proper strength, it is then ready for use, and is as good as any new bath. This treatment purifies it from all organic matter. Some photographers use acetic acid in the bath, but this must by no means be used to make a bath acid after fusion, or you will have solarized lights without detail in the shadows. Should the bath be in good working order, with the exception of pin-holes, the fusion may be omitted, but the dilution must be with distilled water, and then evaporated to its original volume of solution, filtered, and fresh crystals of silver added to make it 40 grains strong. A photographer who values his reputation for good work, will always have *two* negative solutions, and as soon as one shows signs of exhaustion, it should be relieved and replenished, put in the light until the next one shows signs of exhaustion, and so on until pin-holes again appear, when it can be again diluted and treated as above recommended.

(To be continued.)

SCATTERED RAYS.

BY DAVID DUNCAN.

Of light, I mean, or information, if you will. It is a good thing to catch the sparks which the "train of thought" scatters as it whirls along; they give warmth. And, if you do not feel their heat when you catch them, hand them merrily, like boys, to others who may be colder. Catch them! Perchance they may kindle a large fire, or when cooling crystallize into gems. It is a good thing to collect the scattered rays of light which occasionally pass into the brain; they serve to illuminate the mind in its times of darkness, and in a photographical sense serve to illuminate a picture too very effectively.

A NEW METHOD OF TRANSFERRING DEVELOPED CARBON PRINTS.

The present mode of transferring carbon prints is one requiring great care and skill in the manipulation. It consumes a considerable amount of time, and is altogether in a commercial sense, unsatisfactory. I take pleasure in offering to those who print in carbon, an easier and quicker way, which is likewise a success. Prepare sheets of paper as follows: Make a solution, the quantity required, of

Gelatine, ...	2 drachms,
Glycerine, . . .	½ drachm,
Water, ...	2 ounces,

with sufficient carbonate of magnesia or oxide of zinc to make it white. The proper quantity of pigment must be determined by experience, and regulated according to taste. It would be idle to recommend a special paper, as any suitable for mounting or attaching pictures to will do; thin Saxe answers very well. The paper should be floated on the above solution, avoiding bubbles, and hung up to dry, then stored away for use. The solution, of course, should be warm, but according to the temperature it is kept while preparing the paper, so will the thickness of the film of pigmented gelatine be increased or decreased. Care must be taken to keep the solution at a uniform temperature when in use, as a thick coating would be unnecessary, and a very thin one would fail in accomplishing the object desired. Having developed a print, and transferred it to the clean water-trough, take a dry sheet of the prepared paper, immerse it in the same water with the print, and let it remain until the coating of gelatine has become soft, then take the print and lay it uppermost on a sheet of glass or smooth board; next lay carefully on the print the gelatinized paper, and with a flat camel-hair brush press the paper and the print together, so as to exclude air-bubbles and water from between them as much as possible; put aside, without removing the board or glass, until dry. The print will then be found to be perfectly attached to the gelatinized paper. This method is all that can be desired, and is speedily performed. Perhaps it is necessary to add that the transferred print should be immersed in a solution of alum, to render the gelatine of the paper insoluble.

GROUND GLASS FOR STUDIOS IMPERFECTLY LIGHTED.

It is not generally known nor believed by the majority af photographers, that exposures in the camera are remarkably short in studios which are lighted by ground-glass, yet it is a fact. Whether a studio glazed with ground-glass would work quicker than one glazed with *plain glass* only, I have not yet ascertained. Much, of course, would depend upon circumstances, *e. g.*, quality of the glass employed, etc., etc. It is a problem I don't pretend to solve. The principal fault with most studios is, that too much light is admitted. But for studios imperfectly lighted, at the side, by being built in a valley of tall chimney-pots, or in a garden surrounded by trees, or between the brick walls of neighboring houses, the following is valuable.

If plain glass is used in the "side lights" of studios situated as above, it will admit of very little light; that which it admits being only the reflection from the surroundings. Instead of using plain glass let rough ground-glass be substituted; the rough side of the glass should be outside. The light from the whole of the visible sky and from the remotest parts of the opposite wall, etc., etc., will be introduced into the studio, reflected from the innumerable faces or facets which the rough grinding has produced, the whole of the side light will appear as if the sky were beyond it, and from every point of this luminous surface lights will radiate into all parts of the room. Ye who strive to get art out of a "well," try it.

The London *Builder* recommends a similar plan, for lighting a dark-room, in which the darkness is caused by its being situated on a narrow street or lane.

PHOTOGRAPHIC EXPERIMENTS.

(Read before the Photographic Section of the American Institute, on the evening of February 2d, 1869, by H. J. Newton.)

Having devoted much time within the last few years experimenting in photography, I have been led to read with much interest the experiments of others in the same branch of science. I have, however, observed that photographic experimenters exhibit a phenomenon peculiar to human nature; it may not be a defect, but it certainly is, in many instances, a serious impediment in the road to truth or to correct results. I mean the effect upon the mind of a preconceived opinion, or, at least, a preconceived opinion expressed. The expression of an opinion appears to have a power such as nothing else has in shielding the mind; it sometimes seems like an impregnable fortress, into which the mind retires and bids defiance, alike to reason as to sophistry. Whether in physics, metaphysics, theology, or geology, in fact any subject upon which the mind can form an opinion, appears to be subject to this universal law. I do not propose here to attempt an analysis of the reason why it is so, but only to set forth the facts so prominently, that some experimenters may be induced to revolve in a larger sphere. I hold it to be the duty of all experimenters to seek wholly for the truth, and the best, not like, I am sorry to say to many who work, it would appear only to defend and fortify some pet formula or process. It may be a legitimate offspring or it may be an adopted child, only so that they father it, and the public recognize them as its proper and legitimate guardian. It becomes to them then, like the mother's first-born, a wonder, a marvel, and they the parent of it! Such turn with contempt from any one who is presumptuous enough to question the perfection of their little idol. Either forgetting or having never known that human reason has not the prerogative of infallibility, or any way of arriving at infallible conclusions, except in one way, and that involves the necessity of reducing your problem to a mathematical proposition or its equivalent. It must be in a form susceptible of absolute proof. Those who have a moneyed interest in any secret or patented process, are excusable for a certain amount of special pleading in behalf of their interests—but those who have no interest, except what pride or egotism suggests, have nothing to offer but the weakness and frailty of human nature, and it is a tacit acknowledgment that they are unequal to the conflict necessary to resist its unreasonable commands. Some have a particular process, old and defunct, which they periodically exhume and exhibit to the photographic public in an obituary notice, or what strongly reminds you of one. Such may possibly be ornaments to photographic literature, but they are rarely, if ever, useful. They are always eager to defend their hobby against any innovation ; no rivalry is tolerated ; they condemn everything that suggests any change or improvement. No amount of argument would induce them to change their formulæ or peculiar mode of operation. We have an example of such in those who deny the utility of bromide in collodion. They will have only iodide; they will not use a bromo-iodized collodion, or even try it; they claim to know more by theory than others can learn by experimenting.

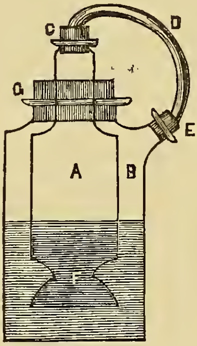
I hold that no one has the right to deny or call in question the claims of any one, when such claims are founded on actual experiments, or even to put them in unfavorable contrast with other processes which produce similar results, unless they have tested the correctness of their conclusions, in the manner described in the particular experiment. There would, of course, be exceptions to this rule, in cases when statements were made in direct conflict with well-known and established physical laws. In dry plates, however, very little is known positively what is the exact thing in a solution that acts upon the sensitive film to preserve it, consequently, experimenters have a wide field from which to gather their material for experimenting. There is not enough known upon the subject for any one to tell what effect tea or coffee would have upon the plate without trying it, and so with a multitude of other vegetable substances. It would seem proper, therefore, in giving some results of experiments, to state the failures, as well as results which are deemed successful. The tannin plate has usually been recognized as the standard by experimenters, as it was the first really good and successful dry plate. Experiments have not been made with a view of finding something which would keep a plate longer than tannin, but to find something which was as good a preservative as tannin, and at the same time possessed qualities which would enable it to retain its sensitiveness. A number claim to have succeeded in producing such plates. I have tried almost every published formula, and I have no hesitation in saying that there are a large number of formulæ which will, if carefully worked, produce plates superior in every respect to tannin. The keeping qualities, of course, can only be decided by time; it is a fair inference, however, that if a plate will keep through the summer months without suffering any detrimental change, that it is good for a year. The coffee plates have been kept two years without showing any change, which is much longer, under ordinary circumstances, than would ever be required. After a plate has kept well for a year, the fact that it will keep another adds nothing to its value. As I observed before, the effort of those experimenting with dry plates has been to discover something that would make them approximate as near as possible in their sensitiveness to wet ones. The great drawback to the tannin plates has been their great lack of sensitiveness. About a year since, the use of the acetate of morphia was introduced as a preservative, but it proved to be only a sensitizer without any of the qualities requisite for a preservative. Plates prepared with it were very nearly as sensitive as wet ones, but they kept no longer, if they did as long, had nothing been done to them, but simply washed. I tried it also on paper, for paper negatives, with the same results. The idea suggested itself to me, that by combining the acetate of morphia with tannin, I might retain the sensitive qualities of the morphia and the keeping qualities of the tannin. I made a few plates and kept them several weeks; they showed no signs of change, and were as sensitive as those prepared with morphia only, and I exhibited some negatives made on those plates to this Society, which were exposed thirty seconds, according to my recollection. I found, however, in a short time, that there was a lack of harmony in the solution; it had undergone a change which rendered it unfit for use as a preservative; I then made a compound of opium, sugar of milk, and tannin, calculating to get the morphia in the opium in a form that would not be as susceptible to change. After a few trials I found that the following proportions answered my purpose, not only making a very clear and brilliant solution, but one that will keep indefinitely. I have some now on hand which has been made nearly eight months, and there has been no perceptible change. I use: hot water, 6 ounces, finely pulverized sugar of milk, ½ ounce; tannin, 40 grains; tincture of opium, ½ drachm; put together in the order here given. The sugar of milk dissolves very slowly unless pulverized, and hot water used; the addition of the opium causes a precipitate in the solution, and it should stand at least twenty or thirty minutes before it is filtered. I prefer sugar of milk to any other saccharine substance, for the reason that, unlike all others, it is not liable to alcoholic fermentation, which always precedes putresence, or the generation of putric acid in saccharine solutions. With plates prepared with this preservative, I have made negatives, in the month of June, with 4½ inch focus lenses, ¼ inch diaphragm, in five and six seconds, with the alkaline developer, which was quite as quick as I could make them with wet plates. I also prepared some plates with a modified coffee process, the only material difference being the substitution of sugar of milk, 20 grains to the ounce, for the loaf sugar usually described. This solution keeps, and can be used for months without exhibiting any symptoms of change. The sugar of milk forms a very hard and dry varnish on the surface of the sensitized film; and another office which it appears to perform, is to render the negative soft and harmonious, preventing violent contrast. That the sugar of milk has this tendency, I proved by making some dry plates preserved with sugar of milk alone. Coffee plates, prepared by this formula, are very sensitive, but not quite as sensitive as those by the preceding process; they keep, however, equally well, and, in that respect, as also in quality of the negative, are all that can be reasonably desired; it is simple and efficient.

(To be continued.)

Griswold's Combined Filtering and Pouring Bottle.

The cut below is to represent a new and ingenious filtering and pouring bottle, the invention of Mr. V. M. Griswold, Peekskill, New York.

By its use an *upward* process of filtration is effected, and all sediment or floating particles that would clog an ordinary filter, tend to drop away from this. The invention will be readily understood by the following description:



B, is a wide-mouthed vessel, into which the material to be filtered is poured through the neck E. A, is an inner tube or bottle with a funnel-shaped neck, F, at the bottom, which is filled with a suitable filtering material. The upper neck of the, inner bottle is fitted in the cork, G, tightly, which cork also closes the mouth of the outside bottle. D is a flexible tube passing through the corks, C and E, thus permitting the compressed air, on the top of A, to pass around again to B through E. It also prevents the evaporation of any volatile article that is being filtered.

When about to flow a plate from this bottle, both corks are removed, and after coating the plate from A, the surplus is poured back through E into B. The value of this arrangement is great. No contaminating substance ever enters the collodion to be used.

It will also be found useful as a stock-bottle for the developer. The *downward* process can be applied with this also, by reversing the operations, but the other, we think the best by far.

Mr. Griswold now has the article ready for sale, and will send a circular giving fuller description of it than we now have space for, to all who may apply. His invention seems to us to be very effective and useful.

PHOTOGRAPHIC LEAF PRINTS.

BY THOMAS GAFFIELD.

As you have been kind enough to notice some humble experiments of mine, on the action of sunlight on glass, I thought it might interest some of your readers to know what might be accomplished by your beautiful art in showing forth the more beautiful productions of nature in the forest and the field.

In pursuing my sunlight investigations, I was led into an examination of the comparative power of different colored glasses, of ground glass, and of the various kinds of colorless glasses, to transmit the chemical or actinic rays. In this course of experiments, I made several photographic sheets, illustrative of this interesting power of the sunlight, to which, during the past year, attention has been called in photographic journals at home and abroad.

During my last vacation, spent in the country, I took some pressure-frames and sensitive paper, in order to carry on my experiments with glass. It occurred to me one day, that differently colored leaves would probably have a similar effect to that of the different glasses in transmitting or cutting off, in different degrees, the action of the chemical rays on the sensitive paper. I gathered some fresh green leaves, and some red, orange, and yellow autumn-tinted ones, and, placing them in my pressure-frame, was pleased to find a very interesting picture produced, showing that the red leaves cut off nearly all of the chemical effect of sunlight, while the orange, yellow, and green passed a greater or less amount of the actinic rays. These first experiments were, of course, quite crude, but, on my return to Boston, I continued them, by the kindness of Messrs. John A. Whipple and A. Marshall, at their rooms in Washington and Tremont Streets. Calling to my aid gentler hands than my own, I obtained some beautiful wreaths of autumn leaves and of ferns, and have been much pleased with the charming and exquisite photographs which have been made by the pencil of the sun. I have sent copies to several photographic friends, and have been much gratified with the universal testimony to the interesting character of the self-printed leaves and ferns.

Your readers will understand, of course, that all that is necessary to make these pictures, is to gather the leaves and place them as negatives in the pressure-frame, and to expose them until a strong, dark print is produced. The time of exposure must vary with the season of the year and with the brightness of the day. In a pleasant day of summer or autumn, an exposure of ten minutes will sometimes make an excellent picture. After being toned and fixed, the print will show, under a magnifying glass, the most delicate veins and ribs of the leaves.

A camera-picture of the leaves would show no detail and no distinctive shading, giving only a dark and flat impression of the shape of the leaves. By using as a negative the sensitive paper sheet taken directly from the leaves, we obtain an interesting print, showing the leaves with different degrees of shading upon a light background. When the leaves are so faded as to be useless, this second sheet can be used as a negative to reproduce the first one, although the impression is not so sharp, and does not show the details so finely as the print taken directly from the leaves. These leaf-prints can be copied by the camera, and make very beautiful card and cabinet pictures.

To the lover of nature, to the botanist, and the amateur photographer, it seems as if leaf-printing would open an interesting field for pleasant work and research.

Possibly, it might afford new material to the artist in making designs for printing calico and wall papers, or carving in wood or stone.

The amateur photographer can find in it an infinite fund of amusement in his summer rambles through gardens, fields, and woods. The professional photographer can obtain a few paper negatives every year, which, if they present a tasteful arrangement of leaves, ferns, or flowers, can be sure to furnish him a source of occupation in his days of dull business, and to give him a pecuniary return in the sale which we think they must always command.

After working a long time upon these interesting leaf-prints, I ascertained that I was not alone in my admiration of their beauty, and I was surprised to learn that a work upon the subject had been lately issued, with a specimen print, by the publishers of the *Philadelphia Photographer*, edited by Professor Charles F. Himes, of Carlisle, Pennsylvania. This is a very neatly printed and quite an interesting volume, and should be purchased by all who desire to pursue this work by themselves, or by the aid of some friendly photographer.

Should any of your readers desire to obtain specimens of the work done in this field, which, we believe, has not been cultivated at all, or to any great extent, at home or abroad, they can be accommodated by applying to our friend, Mr. A. Marshall, 145 Tremont Street, Boston, who has a few fine glass and paper negatives, from which impressions can be multiplied.

I trust that this account of my humble work, in this direction, may not be uninteresting to the readers of your valuable Journal.

BOSTON, January 30, 1869.

MISCELLANEOUS PHOTOGRAPHIC HINTS.

BY M. CAREY LEA.

WET PLATES.

Keeping Wet Plates.—Every one knows that when it is required to keep plates for a considerable time between sensitizing and development, certain troubles are likely to occur, prominent amongst which is that of *marbled stains.*

These stains are of two sorts—those that occur anywhere on the plate and those that appear at the two corners that were lowest in the slide. The first may generally be obviated (as I showed some time back), by curtailing the interval between coating and plunging into the bath, to the smallest possible amount. But this precaution does not avail to prevent the trouble at the corners, which indeed is, of course, to some extent kept down by a very careful wiping of the glass corners in the slide, and other well-known precautions.

I had recently occasion to keep some 8 x 10 plates for about half an hour after sensitizing, and had much trouble with the stains at the corners. Every care was taken. The glass corners were perfectly cleaned between each plate. Each plate, after sensitizing in a bath, itself in excellent condition, was replunged into another 60-ounce bath perfectly new, and kept exclusively for this office of bringing the plates to a perfect condition to meet their delay. I need scarcely say that they were allowed to drain thoroughly on pieces of blotting-paper several times changed, before placing in the slides, and that blotting-paper was invariably placed along the lower edge. Still, although the plates were perfect in other respects, these mat silver stains at the corners would occasionally show themselves, and rise an inch or two into the plate.

I at last hit upon a remedy which, so far as I am concerned, is new. Others may have used it, but I have never seen it in print or heard of its being used. It is but a slight modification of what is often done, but this slight modification just makes the difference between effectiveness and the reverse. I procured a sheet of extremely thick, soft blotting-pad, and cut strips the length of the plate, and about 1¼ inches wide. Such strips have often been applied to the lower edge of the plate, but the difference is in the manner of applying. I fold a crease the length of the strip, and about ⅛th of an inch wide, pressing it down sharply, then opening out to a right angle. Having placed the well-drained plate in the shield, I slide it up a little, and slip the ⅛th of an inch portion under the plate. I do not mean under the *face* of the plate; this would have many objections, but under the *edge.* The broad part of the strip now lies flat on the back of the plate, with its narrow, bent border under the edge, and touching the edge (not the face) of the collodion film, from which it continues to receive the drainings, which the broad part behind carries away and keeps from collecting.

To show the effectual action of this arrangement, the following may suffice: The first time I made the trial, it was with the 8 x 10 plate turned long way up and down. The plate was well drained upon blotting-paper, several times changed before putting into the slide. Nevertheless, on examining the protecting strip when the plate, about twenty-five minutes after, was taken out, the bath solution had risen in places an inch from the lower edge. Perfect freedom from stains was obtained, whereas, in the case without this description of protection, very bad ones would have resulted. Simple as the method is, I find it very valuable, and I do not believe that any one who tries it in long exposures will ever neglect it.

Glass Bath.—Endless trouble is experienced by photographers in consequence of using porcelain and other baths instead of glass. The former may often answer every purpose, but the glass is always right. Glass may *appear* more liable to break, but with common care it is very safe.

DRY PLATES.

Drying.—The paramount necessity of exactest care in drying the plates is only beginning to be understood. An important point is this, that the *appearance* of a plate can never be depended upon to indicate whether it is dry or not.

For a plate may look dry, and yet retain enough moisture to seriously diminish its sensibility, if evenly distributed, which the chances are a hundred to one it will not be. And if unevenly distributed, the sensitiveness of different parts of the plate will be unequal, and stains and spottiness will eventually result. These will, in most cases, be ascribed to the defective nature of the process, or to the often asserted, essentially uncertain nature of dry plates.

As, then, the appearance of a dry plate affords no sufficient criterion as to its thorough dryness, it becomes necessary to adopt a regular system of drying, which the experience of the operator shows him to be in every case sufficient.

In a close box over sulphuric acid, plates dry slowly, but very thoroughly and evenly. Even with a liberal supply of acid frequently renewed, I do not consider them safe short of twenty-four hours.

By the direct application of *heat*, plates may, of course, be dried through and through in a few minutes. Nevertheless, I do not like the method. The drying has seemed to me less regular and the plates less sensitive. Further, there is with many collodions, a tendency to split if dried fast. Collodion that never splits when dried slowly, will sometimes fly entirely to shreds when dried rapidly—I have lately seen this happen with drying against a pan of hot water.

It is also, I think, a bad plan to put newly-made plates to dry in a dark-box along with others already half dry or quite dry. After a set of plates has been made, it is best to make no more within twenty-four hours, then remove the dry plates into a storing-box or into slides, and put the new ones in.

Examining plates to see how they are getting on, is another certain source of trouble; a plate so disturbed will always develop irregularly. Systematic work is absolutely essential in dry-plate photography—the operator feels his way, and having decided that a certain course leads to success, he follows that exactly, unless, indeed, he intentionally wishes to try variations and note results; or, if plates are to be made with shorter intervals than the above, then two or more drying-boxes should be provided, and in all cases, those that are once in, should be left undisturbed until taken out for use or storing.

Hot Developers.—The use of the developer hot is a most powerful aid in dry-plate photography. Various degrees of heat are useful. A *tepid* developer may be in all, or nearly all cases, advantageously applied; a shorter exposure is sufficient, and considerable time may be saved in the development—especially in cold or cool weather.

The actually hot developer will, of course, be reserved for those cases in which the first treatment applied indicates that the exposure has been insufficient. In this way a much more harmonious negative will be got, than if it be attempted to force out the image with one at the ordinary temperature. For the water supplied by the street-pipes is always, even in summer, lower than the temperature of an ordinary room, and the plate is instantly cooled by the developer coming into contact with it.

There is a certain analogy between the action of heat and cold and the influence of the chemicals themselves, which it is well to bear in mind. Heat acts like pyrogallic acid, in forcing out detail and strengthening the action of the ammonia (in the alkaline), or of the silver (in the acid) development. Cold may be compared to the action of bromide of potassium in the alkaline, or of acetic or citric acid in the acid development. The control of these agencies is easily understood and obtained, and affords a new and useful element of power in the development. When a set of dry plates are to be developed, it will be found very useful to place a vessel of hot water beside one before commencing, and vary the temperature of the application according to the indications obtained. In nine cases out of ten, a tepid developer will be found more pleasant to work with than a cold one. The full advantage of the warmth is best got by developing in a pan.

THE ENAMELLING PROCESS.

BY E. A. KUSEL.

I NOTICE that parties are troubled to succeed in enamelling photographs properly, and having had much trouble myself in the same direction, previous to attaining the perfection I have brought the process to, I propose to describe the method which I find entirely successful, trusting that it may do good to others.

MATERIALS NEEDED.

1. Thick plate glass 8½ x 10¼ inches.
2. Newly-made collodion.
3. French transparent or Cox's gelatine.
4. A pitcher to hold the gelatine.
5. A flat porcelain dish larger than the glass.
6. A wooden roller 10 inches long and 1 inch diameter.
7. A clamp 10 inches wide, made as described below.
8. A strip of sheeting 10 inches wide and long as convenient.
9. A regular joiner's glue-pot.
10. Card-mounts printed with six or more cards on each sheet, as per drawing below.

FIRST OPERATION.

Clean the glasses well, and after they are dry rub them with the following mixture.

No. 1.

Alcohol, . .	4 ounces.
Rottenstone, .	Enough to make it creamy.
Nitric Acid, .	20 drops.
Water, . .	4 ounces.

No. 2.

Alcohol, ...	4 ounces.
Pure Nitric Acid, . .	20 drops.

Rub the glasses well with the first mixture and then finish and polish them with the last. Then they are ready for the next operation (remember we use no wax, it is superfluous), which is *to coat the plates with collodion*, made as follows:

Sulph. Ether, conc. fluid, .	6 ounces.
Alcohol, ...	3 "
Negative Cotton, . . .	54 grains.

Let the above settle or filter for immediate use; now remove all dust from the plates and coat them in the usual way. When the collodion becomes thoroughly dry, the plates are ready for the next operation. Two or three hours drying is *enough*, or you may dry them over a hot iron, but it is better to let them dry slowly.

THIRD OPERATION.

Having procured some card-mounts 11 x 9 inches, with lines for six cards printed thereon in red ink or any other color you choose (but remember the card-mounts ought not to be too thick, and must be printed with good ink, that will not dissolve and flow over your prints during the enamelling), take a long strip of sheeting a little wider than your mounts, wet it thoroughly, and stretch it out on a pice of glass as large as the mounts. Now lay one of the card-mounts on it printed side up. Now lay another upon it printed side down, and lay the wet cloth over it; then another two on them in the same manner as above described, and cover up with the cloth, and so on until all the card-mounts are within the folds of the wet cloth. Now lay another plate of glass on the top, and set something heavy on them, and let them get thoroughly dampened.

FOURTH OPERATION.

Procure some of the best gelatine, French transparent (or Cooper's Isinglass, which I prefer, as I think it is more tenacious and not so brittle when dry): take of

Gelatine,	3 ounces.
Water,	10 "

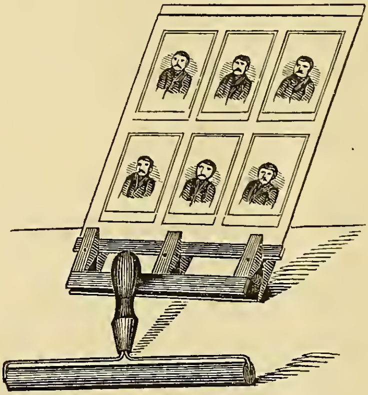
Put the gelatine and water in a glue-pot, and the same in a kettle with water; set on a fire to boil. The gelatine will soon melt, and when melted, filter through a linen or cotton cloth into a clean pitcher, and let it cool down to 100° Fahrenheit. While the cooling is going on we will prepare for

THE FIFTH OPERATION, THE MOUNTING OF THE PRINTS.

Dampen the prints in a wet cloth, or in any way to suit your own convenience. Now take one of the dampened card-mounts, lay it on a sheet of glass, and mount the prints with gum arabic, a little thicker than is generally used to mount plain prints. Having mounted your prints, return the mounted boards into the wet cloth, but, this time, so that they are back to back, else the prints will stick together, and you will have trouble in taking them out of the cloth. The prints being all mounted and again returned to the folds of the cloth, get ready for the

SIXTH OPERATION, OR THE ENAMELLING.

Take a flat, shallow, porcelain dish, larger than the glass; set it on a table; lay one of the collodionized plates into the dish, collodion side up. Now take one of the damp card-mounts out of the wet cloth, and lay it, print down, upon the glass. Put on the end towards you, the clamp to hold the card-mount down to the glass, about three-quarters of an inch. Now bend backwards, to you, the card-mount. Then flow over the glass next to where the clamp holds the board down to the plate crossways, a sufficient quantity of the warm gelatine. (Practice will soon teach how much.) Do not flow on too much—and worse, if too little. Having done this, seize the card-mount with your left hand, and, with the right, the roller. Bend the card-mount down towards the glass, and, at the same time, press your roller steadily, with the right hand, down upon the board, three inches from where the clamp holds the board and glass together. Roll from you, as you lay the board down, and you will squeeze out the superfluous gelatine. Then take off the clamp. Turn your glass (the side where the clamp held the board) from you. Press, with a slight pressure, upon the middle of the card-mount, and roll from you again, as before, and the remainder of the superfluous gelatine will be pressed out into the dish. Now take your glass, with the pictures, and lay it down upon a flat board or table, and set some weight upon it, a five-pound bottle, etc.



Having finished enamelling, let them lay about half an hour, with the weights upon them. Then take them up and lay them some place to dry slowly, but thoroughly, when, after about twenty-four hours, or more, you may cut around them with a penknife, and they will leave the glass readily, and with a beautiful polish. Do not try to pull them off. Generally they will come off themselves when dry.

I send a card-copy of the clamp I use; and also the roller. The wood-cut above will make them plain. The clamp, as you see, is made of three spring clothes-pins, and the roller I made of a broomstick.

FAILURES.

1. Blisters before drying: the gelatine is too thick and too warm, and the pressure of the rolling not enough.
2. Blisters after drying: the gelatine is too thin or too hot, or you pressed too hard on the rollers.
3. The cards will not leave the glass after they are dry: the collodion was not tough enough; the gelatine was too hot, the old glasses had not been carefully cleaned, or dried by artificial heat; or you forgot the nitric acid, in the alcohol, for polishing.

After the card-mounts are removed from the glasses, put them (the glasses) into cold water, and the gelatine will swell up, and can be easily removed.

Hoping this will prove some service to my fellow photographers, I give this, my dear-bought experience, to those noble spirits who have contributed so much for the good of our beautiful art, thinking I will not interfere with B. & R.'s patent, applied for.

OROVILLE, CAL., January 24th, 1869.

HOW TO PAINT PHOTOGRAPHS IN WATER COLORS.

So unprecedented has been the sale of this useful manual, so large was the void that seemed standing vacant to receive it, that an extended review of it seems almost unnecessary. At this writing it is less than a week since the first copies were mailed, and yet *almost six hundred copies are sold!* Such an event is unprecedented in the sale of any photographic book, unless it be *Mosaics*.

What then is this book that meets so ready a demand?

Its title explains quite as fully as pages could do. It is a handsome 12mo. volume of 128 pages, printed on excellent paper, beautifully bound in cloth gilt, and gives full, exhaustive, and plain instructions how to retouch and color photographs in India-ink and water colors, beginning with the classification of colors; treating upon the contrast of color and tone; the relations and harmonies of color; brushes and implements; arrangement of the light; properties and uses of colors; how to use color upon all parts of the figure, drapery, backgrounds, etc.; the method of painting; India-ink; on coloring landscapes, ivorytypes, solar camera pictures, etc., etc., followed by an admirable chapter, alone of incalculable value, on "*Art Truths for Ready Reference*," and concluding with a copious and full index.

So much for the book. Now why should it be in the hands of all of our readers whose business does not warrant them in employing an artist?

1. The tendency of the photographic business of the day is *unmistakably towards better work.* The public are willing to pay more money for pictures, and they demand an equivalent in quality, therefore every artist should study to cater to their wants.

2. Although there is nothing in our mind more beautiful than a perfect plain photograph, yet the public demand *colored* work, avowing that it gives more naturalness and life to their pictures. This being the case, the enterprising artist prepares to meet the demand. Not being able to give steady employment to a colorist, he has availed himself of the excellent services of that excellent institution (for an *institution* it *is* to many), the *American Artists' Association*, and thus been able to give his customers first-class work, promptly and as advantageously as large city galleries. This is all very well, and for a long time after he buys and studies Mr. Ayres's book, he will have to continue to send his best pictures to the American Artists' Association; but there are many rainy days that he can occupy to advantage himself if he will but try. In his instructions, Mr. Ayres has successfully made his work *the* book for beginners. He makes the first lessons delightful and easy, and then gradually leads the aspirant higher and higher, until he is *fully* instructed "How to paint photographs." Go and buy the book, and learn *how*. Hundreds, aye thousands of old pictures lie about the homes of your patrons waiting to be copied and colored. Such a rich harvest should not be overlooked.

PHOTOGRAPHY IN GERMANY.

BY DR. E. LIESEGANG,
Editor of Photographisches Archiv.

GERMAN photographers are at this time on the *qui vive* for mechanical photo-printing processes. Since the really wonderful *Albertypes* have made their appearance at the Hamburg Exhibition, two other inventors have sent me specimens of phototypes of great merit. One of these, Mr. Husnik, of Tabor (in Bohemia), has now sold his process to Mr. Albert, of Munich, and I hope we shall soon hear from it; it is a photo-lithographic half-tone process. The other, Mr. Schwab, of Hanover, makes phototypes of a style quite different from Mr. Albert's. They do not so much resemble photographs, but are much deeper, and very clear in the lights; not so very fine in detail; more what we call "artistic" portraits. Mr. Albert's prints I have now shown to many able old photographers, and not one of them has been able to distinguish them from silver-prints, before being told what they were. I send one for your inspection.

Mr. Woodbury, of London, is now very busy with his photo-relief printing process. He has sent me a few dozen of his latest productions, all of whole size and larger, and all very creditable for his process. These prints also differ from silver-prints, from showing more detail, in combination with much brilliancy and clearness. When I paid a visit to Mr. Woodbury last year, he gave me a minute description of his process, and I dare say it is a wonderful one. The company who work the process, is using the electric light secured by the use of a large electro-magnetic engine, driven by a gas engine. It is curious to consider what a range of natural powers is set in motion in this work. Dr. Phipson has shown this. *Chemical action* in the electrical battery sets free *electricity*, this produces a spark whose *heat* enfires the gaseous mixture in the gas engine, thus setting in *motion* the piston; this motion is communicated to the magnets of the electro-magnetic engine, whose *magnetism* is thus converted into an *electric* current which produces *light*, the *chemical action* of which produces in the sensitive gelatine a molecular *motion*, and the *result* of all is the picture!

Mr. Woodbury gave me one of his gelatine reliefs, and the lead plate intaglio produced with it. It is impossible to conceive of anything more beautiful and delicate than this relief. It is only lightly colored, of a pale greenish-blue, and was obtained from one of Mr. Angerer's finest cabinet negatives. The dress of the lady is covered with a lace veil, and in the highest lights we see the finest details. The half-tones are purer than anything one can imagine. It may appear that I am somewhat enthusiastic, but what I say has been confirmed by all who have seen this little gem.

The production of glass transparencies by the photo-relief process, is surprisingly simple. The lead intaglio is placed level, a large drop of colored gelatine is poured in the centre, and a glass-plate laid upon it; in a minute or two the gelatine has set, and the finest transparency is ready.

As I am about to describe specimens of new processes, I may as well continue and tell you what photographs I have lately received.

Here is a large lot of dry plate prints from Mr. A. de Constant, of Lausanne, illustrating the powers of the coffee and gum processes. In the hands of such a skilled photographer as Mr. Constant is, all processes will do, but in searching for the beautiful qualities of wet plate photography, I believe the gum process (Mr. Gordon's) comes nearest. Mr. Constant's prints are bits and studies from the neighborhood of Lausanne, with water and clouds; all very well selected and admirably rendered. Some of the lot are samples of different printing processes. One large portrait of Mr. Constant himself, printed *in* the paper, by sensitizing the cetrarine-paper from the back. It does well for a lamp-shade, being very vigorous in looking *through*, although pale on the surface.

Two or three prints, by the process described by Mr. Leighton Pine, are very good, although made upon ordinary Swiss paper.

Another illustration of the capabilities of the gum process, comes to my mind in a portrait taken by Count Nostitz, of St. Petersburg, a clever and enthusiastic amateur photographer. Count Nostitz uses

Mr. Gordon's process, and writes me that he gets portrait negatives in fifteen seconds' exposure.

Some fine dry plate negatives were brought to me by Mr. F. Dubost, a Swedish gentleman, now residing at Dusseldorf. Mr. Dubost is an advocate of the coffee process. He tells me that he has derived much advantage from following Dr. Carey Lea's suggestion to dry the plates over sulphuric acid. Mr. Constant has ably shown that much of the success in dry-plate photography depends upon the right drying of the sensitive film, and it seems that Dr. Lea's way is the best one. I have myself applied this suggestion to the drying of the sensitive film used in the enamel process. I shall have something to say on this process in my next letter. It is becoming very popular in Germany, and I wonder that it is not much used in America.

Six beautiful views have reached me from an American photographer, Mr. Herbruger, of Panama. They represent the scenery of the Panama Railroad, and are very interesting, but have one fault—I mean the white paper sky. The prints would have been much improved by toning the sky down, and would be perfection then.

I dare not close my letter before thanking those gentlemen who have kindly sent, through my friend, the Editor of this Journal, prints for the Hamburg Exhibition. We are much indebted to them for so quick responding to our appeal. The Exhibition would have been incomplete without them. I shall try to have a collection of German work for the Boston Exhibition. All of the fifty cabinets have been much admired, especially Mr. Gurney's work. One print, by Mr. Carl Meinerth, the portrait of a lady, by the mezzotinto process, was quite new to us. The general tendency here is to sharpness, and this portrait had all the excellent qualities, without being sharp. I do not think that it is necessary to go so far diffusing the outlines, and I have more faith in processes like that of Mr. Burgess, who combines detail with boldness, by the semi-transparent state of the substratum, formed of whitened gelatine in the Eburneum process.

Elberfeld, February 25th, 1869.

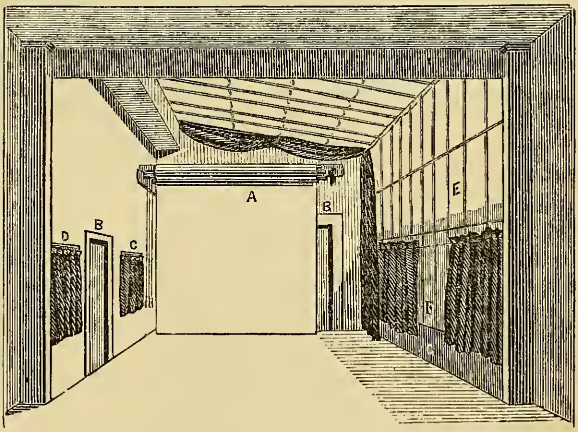
THE REUTLINGER STUDIO.

When we published Mr. Reutlinger's beautiful picture in our January issue, we had not yet received from him the description of his studio. We have since received it, and take pleasure in giving it in his own words below:

According to your request, I endeavor to give you, to-day, as accurate a description of my studio as I can, with accompanying sketch. If you can make anything out of it for publication, I shall be most happy, as I am always anxious to do all in my power for the benefit of the fraternity.

My studio, made of glass and exposed to the north, is quite plain, and has a length of 9 metres 50 centimetres; but of this there are only 5½ metres built of glass; the balance was a small room, which was added to give it more length. The glass side is 2 metres 90 centimetres high, which is divided into three parts. (See sketch.)

1st. The lower part, G, is a wall 50 centimetres high.



2d. The middle part, F, 1 metre 10 centimetres, of stained glass.

3d. The top, E, 1 metre 30 centimetres, of common white glass; the whole length, of 5½ metres. The whole roof of this is also made of stained glass. I have, therefore, only 1 metre 30 centimetres of white glass, the balance of the light coming through stained glass. The whole width is 3 metres 35 centimetres, and, the side wall being 4 metres 10 centimetres high, it gives a fall of 1 metre 20 centimetres to the glass roof. To guard against the strong rays of the sun in summer, I have a blind over the whole length of the roof, which has a height of about 1½ metre, and is managed by a crank inside of the studio. Besides, I have inside six different screens or curtains of blue calico, to shade the light from the top, and also to guard against the reflection of the sun from the houses opposite. Those curtains cover the whole length of the stained glass, so that most of the time I only get my light from the 1 metre 30 centimetres of white glass. As you may judge from the above, I have only one side where I can sit my models, and it is only when they sit for small vignettes, that I can place them on the other side, on account of the shortness of the studio. This accounts for all my productions being lighted from the same side, which is very troublesome with a great many subjects. Another inconvenience is the small width. For this reason, I am unable to have my backgrounds on frames, as is usually the practice. The only two I have, I am compelled to place at angles; but I have eight others on rollers, which are let up and down, with balustrades, chimneys, columns, etc., as auxiliaries. I use two instruments, one for cartes-de-visite with two objectives, from Dallmeyer, of London, whom I can strongly recommend to all my colleagues; the second I use for the taking of large-size portraits, cabinet portraits, cabinet vignettes, and also for reproductions and enlargements. I also use a great many other auxiliaries, which stand in my studio, such as chairs, stools, tables, pedestals, columns, head-holders, etc., which all other photographers use. You will see by this, that the greatest caution and order, in the small remaining space, is necessary for the posing of persons, and many outsiders are astonished that so many pictures are made in such a small, insignificant room. One small door on the left, B, leads to a gangway, where the plates are polished, and, on shelves, are many boxes containing negatives. On this gangway opens the dark-room, which is very narrow, and receives its light from the studio through yellow glass at D. The other door, C, on the left, is a glass door with a curtain; this is seldom opened, and it leads to a very small room adjoining the dark-room, where the plates are prepared. This, and the dark-room together, have only a length of 2 metres 30 centimetres, and 2 metres in width. There is a table 64 centimetres wide on one side; on the other are basins for the receiving of the water for the development of the negatives, so that there is only 84 centimetres left to turn about. The gangway receives, also, its light from the studio through yellow glass, and, also, has an opening from the top, which is used more as a ventilator, especially in summer. It remains closed almost all winter.

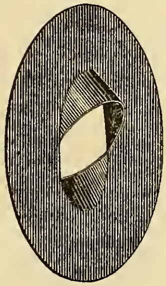
As regards my way of working, the description of my baths, etc., I will give you in a second letter. As I write my letters in German, I have to get them translated into your language, and it is no small task. I shall, as soon as possible, do myself the pleasure to entertain you again.

Ch. Reutlinger.

THE FLARE STOP.

BY JOS. C. BURRITT.

I noticed in the February number of the *Photographer*, an account of some experiments with a new diaphragm; and as I have been using the same principle some two or three years, in my own camera, with success, I inclose you one of the first I experimented with; also some views taken with it, or a modification of it.

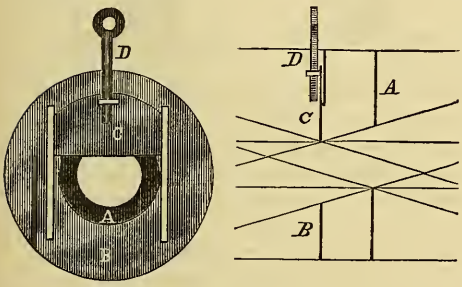


I was driven to the invention by the difficulty encountered in photographing in the deep dark glens with which this neighborhood abounds, often spoiling the upper part of my view, while the lower part was under-exposed. It consists simply of a thin brass disk, slit in the centre and flared out at top and bottom, the former being flared in a reverse direction from the latter, and *vice versa.* It will be made plain by the diagram above.

For a year or more I have used a simple slide in front of my ordinary diaphragm, which I find answers a very good purpose.

The distance between this slide and the diaphragm depends much on the size of the diaphragm, and also on the width of the angle of the lens.

The figures below will make my plan understood; one giving a front, and the other a side view. In the former, A is the ordinary diaphragm; B, a plate for holding the slide; C, is the slide, worked up and down by means of the screw, D, outside of the lens-tube. I send you some views made with both arrangements, and also one made with the ordinary diaphragm in use.



Ithaca, New York, Feb. 22d, 1869.

Mr. Burritt's stop is certainly very ingenious; is much simpler, and can be more cheaply made than Mr. Sutton's. It can only be used, however, for view lenses. The views sent by Mr. Burritt confirm the value of his method of diaphragming. They are of deep glens, with banks 300 to 400 feet high, mainly where, with an ordinary stop, the top would be over-exposed, and the lower parts still in shadow. In these the exposure seems to have been all over the same. In long distances this stop also seems to be very useful, in securing detail in the centre of the view, while the outer edges are fully exposed.—Ed. P. P.

THE OPHTHALMOS.

Photography *on* the earth and *under* it, is possible to all, and so is sending the camera alone up into mid-air, making it perform its offices there, and to come down and deliver the sensitized plate with a topographic or hydrographic view, also possible, by the use of the apparatus we are about to describe, and which is called by the inventor the *Ophthalmos.*

The *Ophthalmos*, patented by the Rev. John A. Scott, in February, 1868, is an automatic magnetic photographic camera, to be attached to a small balloon and elevated *without* the operator to any height above the earth's surface, when, by a clock, working on a lever, in one form, and by an electro-magnet drawing the lever, in the other form of the invention, by the revolution of a disk at the lower end of the pendent instrument, the camera is opened and then shut, and the photograph of the subjacent surface of the earth is instantly taken. At the same instant that the revolving disk, operated by a coiled spring, opens the camera, the magnetic needle is fixed in its position by a mesh of wire that is thrown down upon it; and when the apparatus is drawn down by the cords, the picture is found taken, with all the points and bearings of the compass.

This invention will be of use in several important departments of science and art. The inventor claims, viz.:

1st. It will enable man to obtain a bird's-eye view of the earth's surface around him, and see objects, accidents of ground, ravines, fields, woods, etc., beyond the horizon of his vision, when even occupying very elevated stand-points on the earth's surface; and thus as an instrument for making military, naval, and internal-improvement reconnoissances, it is cheap, quick, and accurate; and can, by combining several cameras, *extend* the area photographed by one simultaneous operation.

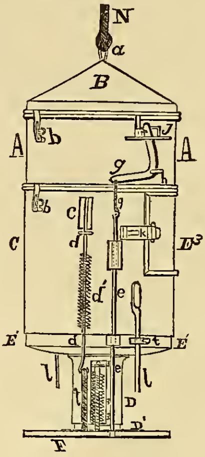
2d. In substituting photography in the stead of the old method of topography, this invention must be a great saving of the most costly educated labor. While the value of its greater *truthfulness*, its *minute accuracy* of *detail* in furnishing a *true copy* of the *earth's surface*, is hardly to be estimated. It will bear to the *old tedious* and *very expensive* process of making "*a topographical map by survey and hand*," a much more exaggerated relation than a *photographic likeness* bears to a *painted portrait.*

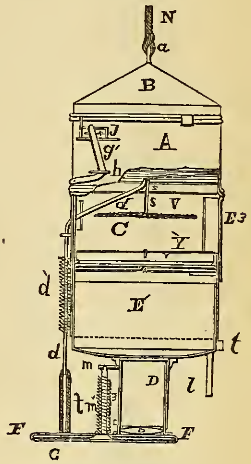
3d. This invention will enable the buyer and the seller of land to have *accurate photographs* of the lands, houses, fields, roads, streams, etc., thus enabling parties to see a veritable picture of what is in the land market.

4th. The instrument may also be of use in the explorations of the depths and shoals of the sea-coast, estuaries, and rivers which empty into it. Aeronauts testify that lakes, rivers, and seas are transparent to a great depth, when viewed from a balloon at a great height. The geological formations at the bottoms of rivers are distinctly traceable by the naked eye from a mile's elevation above. See Wise's History and Practice of Aeronautics, page 185–6. If these facts can be relied upon, the photography from a small elevated balloon will abridge the labors of the Coast Survey, and exhibit the position, direction, etc., of the deep and the shallow water,—all the shoals, rocks, and reefs of the sea—and thus aid the navigator; but the physical researches of the land are behind those of the sea, and here its uses must be most valuable.

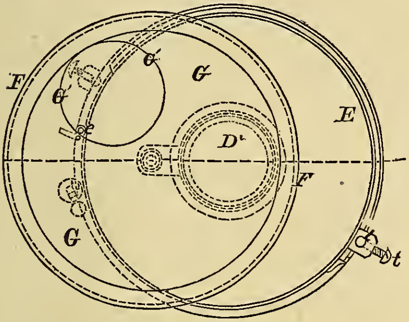
If the reader will imagine a balloon suspended in the air with a camera, lens front downwards, he will have an idea of the Ophthalmos. An ordinary balloon is used, but the camera used will need some description to make it understood.

The body of the camera is cylindrical. Within its upper part, A, is a clockwork, which gives the time of day, and also serves as a means of automatically making and closing the exposure of the plate. Below this is a chamber, C, with a semicircular opening closed by a door, E^3, to which latter a circular case is affixed, which may be removed from its chamber by opening the door. The top of this case, Y, is marked off with degrees, and provided with a magnetic needle, Y', thus forming a magnetic compass. The lower part of this case receives the sensitized plate. Surrounding it is a ring, also marked in degrees, corresponding to and arranged opposite to the degrees on the compass above it. V is a wire-netting, suspended from the hook S' by means of the rod S, which netting is dropped upon the needle of the compass, arrests it while the exposure is made, and indicates the magnetic meridian of the place represented by the picture. D is the lens-tube, and D^1 the lens, adapted for instantaneous work. F is a disk eccentrically secured in a plane at right angles to the axis of the lens; G is a circular plate applied to the bottom-side of the disk, so that it will rotate freely. Through this plate, G, is an opening just the same size as the opening through the disk F, or it may be larger. To the axis of this plate G, a rod, m^1, is secured, which passes up through the disk F, and is guided by an arm, m, projecting from the lens-tube. A spring is coiled around this rod, so that when turning the plate G about its axis, the spring is wound up.

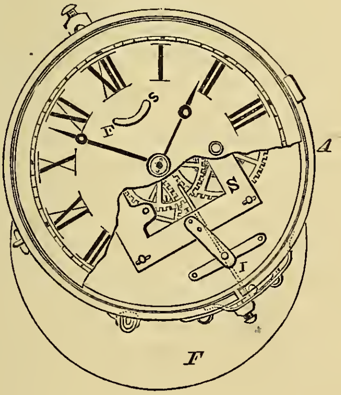




In the disk F are two small openings, one receiving the end of a rod *e*, and the other for the the loop *f*, which is attached to the rod *d*. The rod *e* is allowed to receive a vertical movement, and is attached to one arm of a bent lever g', which is pivoted at *h*, the other arm of which lever extends upward to an oblong opening, *j*, so as to be acted upon by a lever *i* at the proper time of taking a picture. The lever *i* is pivoted, *s*, and its inner edge engages with the minute-wheel as shown in Fig. 3, so that by the movement of this wheel, the lower arm of G′ is raised, and the end of *e* drawn out of the hole in the disk F.



The rod *d* passes through eyes, and is so bent as to enter the chamber C through an opening *c* and extends *s′*, at which point an eye is formed upon the rod *d*, through which the hook S′ passes, as shown in Fig. 3. The rod *d* is drawn upward by a spring *d′*, when its lower end is released.



To operate with the instrument, G is turned round, and the end of *e* inserted through F far enough to arrest G with the lens covered by it. The loop *f* is also drawn down and attached to the tongue-piece in a hole made through F; V is then hung upon its hook *s′*, the sensitized plate introduced, and the focus adjusted. The instrument thus adjusted is attached to the balloon, and when everything is ready for its ascent, the lever *i* is set so that the minute-hand of the clock will at a certain time operate upon the lens, and thus release the plate G. The balloon is now allowed to ascend. When G is released, the spring m′ will cause it to move; expose the plate, and cover the plate again. At the same time a projection on the side of G detaches *f* from its hook, and allows the spring *d′* to detach the netting V from its hook S′, thereby causing the netting to fall upon and hold the needle Y in the position which it assumed before the picture was taken. A ball or flag is attached to the instrument in such a way that it will drop to the earth the moment the plate is uncovered. After the exposure is made, the balloon is drawn down, the plate removed and treated as all plates are that are taken upon or under the earth.

Mr. Scott's address is Moorfield, W. Va., and his invention, or a part of its ownership, is for sale.

PHOTOGRAPHY FOR BEGINNERS.

BY PROFESSOR J. TOWLER, M.D.

II.

I WILL now show you how to take a negative. This is a photograph generally taken on glass, more rarely on paper, and it is so called, that is, *negative*, because the lights and shades are just the reverse of those on the object, whose picture we wish to take; but, by a second process we can obtain an indefinite number of photographs from this negative, in which the lights and shades are in their natural position, and besides this, the figures in the picture are not transposed, right into left, and left into right, as in the melainotype or tintype.

The first thing to be done, is to get your glass-plates into proper shape. Now, glass can be got almost anywhere, but my advice is: do not get it anywhere. It is true, you can take a negative on any glass, but as you proceed in photography, you will find that it is poor economy to attempt to do good work on bad materials. The glass that is fit for negatives, must be free from all sorts of flaws, such as scratches, air-bubbles, streaks, rust, etc.; it must be clear and flat. You will find the article you want at headquarters, where you order the rest of your outfit. Order glass of the first quality. I suppose you know how to cut glass with a diamond; if not, go to a glazier and take a few lessons of him.

The size of negative most generally taken, is of two dimensions: the one for card pictures and the other for cabinet pictures. The latter size admits of more art to be introduced into the picture, as you will perceive in the beautiful studies published as a frontispiece to each monthly issue of this Journal.

Having cut your glass to the proper size, see that each plate will fit in its place in the plate-holder; for it is exceedingly annoying to go through all the preparations of a plate, and at last find that it is either too large or too small.

The next thing to be done, is to file off each edge of the glass-plate, or to grind them off on a grindstone; otherwise, you might easily cut your fingers in the subsequent manipulations.

We will now proceed to the next operation. Some operators omit it, and almost smile at those who do perform it. They think it unnecessary and troublesome. We do not regard it as either one or the other; on the contrary, we recommend it as good practice, the result of long experience. The operation here alluded to is the coating of the plates after they have been thoroughly cleaned, of course, with a thin film of albumen. But perhaps it will be well to state how the plates are cleaned for the reception of the albumen.

Take two large corks, and tack on one end of each a piece of buckskin or chamois leather; this piece of leather is sufficiently large to be tacked on along the side of the cork, so that the bottom of the cork is covered with a smooth layer of the leather. One of these is kept perfectly clean and dry; the other is used wet, in order to rub on the surface of the glass-plate some rottenstone. First wet the plates with water, and then scatter a little rottenstone upon either side, and rub it with the wet leather on the cork until all the dirt is well covered up and rubbed in with the rottenstone. Now wash all the powder off thoroughly from either side, and rear the plate up in a pail of clean water, or under the tap. Proceed in like manner with each plate until you have thus cleaned two or three dozen. Now let us prepare the stock solution of albumen.

Separate the whites from a dozen eggs, and measure the quantity, and for each ounce add 1 ounce of water and 5 minims of ammonia. Put the mixture into a clean bottle, cork it up, and shake it well. This solution will keep for a long time.

ALBUMEN FOR PRESENT USE.

Stock Solution, . .	2 drachms.
Water, ...	14 "
Iodide of Ammonium, .	6 grains.

Filter the solution through moistened filtering paper; it is then ready for use.

For the next step you require a pneumatic plate-holder, Anthony's patent, an excellent and indispensable article, as also a plate-rack made by the Scovill Manufacturing Company.

Place one of the cleaned plates from the pail on the India-rubber holder, flow over it a pint of water on the surface you intend to cover with the albumen solution, and after the latter has drained a little, examine the surface well, and if there are any particles on it, wash it again until it is quite free from them. Now pour on a sufficient quantity of the albumen, so as to cover the surface, and let the excess flow back again into the vial, but in such a manner as to prevent the formation of bubbles. Each plate when thus coated, is reared away on the plate-rack. Finally, when the rack is filled, cover the plates over with a large sheet of clean paper, in order to keep off the dust. When the plates are dry, they can be packed together in paper, the albumen surface always facing in the same direction, in order that you may know at once which is the albumenized side. Still, if it should happen that the plates get disarranged, it is a very easy matter to distinguish the albumenized surface from the plain glass, thus: breathe upon the two surfaces; on the albumen side the breath evaporates rapidly, but on the plain glass slowly.

COLLODION FOR NEGATIVES.

Ether,	10 ounces.
Alcohol,	10 "
Iodide of Cadmium,	80 grains.
Bromide of Cadmium,	40 "
Bromide of Ammonium,	10 "
Pyroxyline,	120 "

Mix all these ingredients together, and shake well until the solution is complete; for present use you will have to filter off a few ounces, but it is better to set the rest aside to ripen and settle. Decant from the top as you require it.

Your albumenized plates will need no dusting before coating them with collodion, if they were folded up in clean paper as soon as they were dry; but if the albumen surface is dusty, use a fine, broad, camel's-hair pencil, and brush the dust or fine particles off.

The plate is coated with collodion in the same manner as the melainotype plate, and is allowed to drain until all excess of collodion has dropped from the nearest corner of the plate into the collodion-bottle. A collodion-bottle and a collodion-filter you will require; both these articles are necessary; get them with the rest of your articles from the stock merchant.

The same silver bath will do for both tintypes and negatives. If the collodion film has already set, lower it down into the bath, and moving it gently up and down, and sidewise, for a few seconds, and then leave it to sensitize.

Some years back I recommended and published my plans for the use of two baths, one of the ordinary strength and another quite diluted, into which the plate was to be inserted as soon as sensitized. By this means many troubles could be avoided, such as streaks on the plate, unequal development, etc. Subsequently, I recommended that the plate should be washed as for a dry plate, and then exposed as a wet plate. These plans are, though late in the day, coming into vogue as if they were something new. Well, it is never too late to learn.

For room-work I still hold to the plan of having two baths: one about 40 grains strong, and the other about 5 grains; that is, in each ounce of water in the first bath we have 40 grains of nitrate of silver, and in the latter 5 grains.

Let the plate remain in the latter bath a few minutes, and move it about, up and down, and sidewise, before you take it out. Proceeding in this way you will be almost certain to get clean pictures.

EXPOSURE OF THE NEGATIVE.

The length of exposure is very variable; sometimes you can get a negative in the room with an exposure of two or three seconds, and sometimes you require almost as many minutes. With a Dallmeyer's quick-acting 3 B lens, for cabinet pictures, and with a moderate light, from ten to twenty seconds will be found sufficient. In respect to exposure, it is better to err on the right side, that is, to expose rather too long than too short a time; for, with the latter method you can never obtain, by any subsequent appliances, that detail which is absolutely necessary to form a good picture; whilst with the former method you have, by means of the developer, control over the negative, so as to carry the development as far as you wish, and then stop all further action.

I will continue the subject in the next issue.

Lea's Manual of Photography.

. . . . . Thanks to the example of a few good artists, and the teachings of a few such men as M. Carey Lea, photography has assumed a new phase, its deficiencies being pointed out, and as far as possible rectified. More than all, the chemical means by which good work may be made and preserved, are so clearly and admirably given, that the tyro, after a careful study of the work before us, should only need practice to make him perfect.

Mr. Lea takes up the subject at the beginning: he leads the student at first into the practical knowledge of the manipulation, and when he is delighted at the success of his experiments, directs his attention to the scientific view of the subject, an acquaintance with which is absolutely necessary to the attainment of uniform excellence in production.

Any one who will even carelessly peruse the volume which Mr. Lea has recently published, cannot fail to see that the author thoroughly understands his subject, theoretically and practically, that he has made it a specialty, and brings to its discussion an amount of learning, research, and experience, which entitles him to a first place among writers on photography. The portions of the work which are simply practical, are worthy of all praise. They are the result of the author's long experience, and are clearly and forcibly presented. The chapter on optics, while lucid, offers some points of difference from the theories commonly received, and is worthy of especial consideration.

Mr. Lea's hints as to the proper composition of a landscape or a group, are valuable to the artist who wishes to make his pictures interesting as portraits, and at the same time pleasing to the cultivated taste. In Part IV, the author develops many new theories connected with the actinic action of light on the collodion film, and the relative influence of the different portions of the spectrum. His advice to the photographer, touching the use of the poisonous solutions he is obliged to handle, should be read by every operator, and not only read but followed.

We would in conclusion express our thanks to Mr. Lea for his contribution to a true knowledge of the mysteries of the art of which he is so successful a professor, and our desire to see his volume in the hands of every one at all interested in the improvement of one of the great discoveries of the age.

The volume is handsomely printed, the cuts are neatly and intelligibly drawn, and the whole volume reflects credit alike upon author and publishers.—*Lippincott's Magazine.*

THE SHAW PATENT AGAIN.

"A FAULT confessed is a virtue added to a man," so says the dramatist, and therefore we are the more free to admit that never having seen Mr. Shaw until we had issued our February number and scattered it to its four thousand readers, we there did him unconscious justice. We had supposed that he was making illegal claims upon photographers; that he was trying to make them believe that they could not save their wastes without paying him for the privilege; that he was making the mistake we spoke of in the beginning of our paper as common among patentees, of claiming more than he had a right to; that his claims so far should be regarded as unworthy of notice, and that his threats were only subject-matter for the waste basket. Such were our prejudices against him that whenever our subscribers brought him to our mind, we thought involuntarily, "Oh! why *will* our friends continue to bother us about this man's harmless threatenings? Why does not their common sense teach them better?"

Since then we have been "seen" by Mr. Shaw. He called and left a long communication with us, requesting its insertion in our pages. After reading it, and after having been "seen" by him, we hold to our old suppositions, and our readers must not make haste to anticipate our recantation of our former article on his patent. We thought all we said before and we think it still. The paper left with us is a resumé of the capabilities, intents, and purposes of the "Shaw & Wilcox Company;" a personal attack upon Mr. Bloede; a supposition that we have been "misled" by the "vultures and cormorants who go about gathering wastes to refine;" a statement that the "Company" is about to have the validity of their patent "tested before the courts" (a matter we very much rejoice over and hope for a speedy *fiat*), and several other matters too tedious to mention, the whole covering thirteen foolscap pages and accompanied by several circulars. We of course cannot publish such twaddle.

All we propose to do now is,

1st. To hold on to all we said before, *i. e.* mainly, that photographers saved wastes years before Mr. Shaw applied for a patent; (see article in last issue by Mr. Magee, one of our most reliable photographic chemists), and therefore are entitled to do so still by the common method, which is to collect them in a suitable vessel, and from *time to time* precipitate the gold and silver by some of the well-known chemical processes.

Mr. Shaw's patent is for a *continuous* process, by providing a vessel which should contain at all times an excess of protosulphate of iron or its equivalent; the solutions, without further attention, running into it become deprived of the silver and gold, which collect at the bottom, while the "worthless material is *allowed to escape.*"

Working his patent practically, Mr. Shaw has found it advisable to save but two kinds of solutions in his apparatus. One, the developer, can be just as well saved without it, the other, print-washings and solutions of nitrate of silver, can be better saved in the ordinary way, as it is a process requiring time and attention, which the apparatus cannot give.

2d. To do a matter or two of justice to Mr. Shaw. First: We believe that Mr. Shaw's apparatus is useful, though by no means necessary or the best, and also add that his agreements, circulars, and himself all seem with one exception fair, but he would realize more if he would *push it on its own merits* and not claim *old methods* as "*equivalents,*" and threaten prosecution so promiscuously. Second. Mr. Bloede has said (see page 54, February issue) that "the practice of mixing all of the various liquid wastes cannot be sufficiently condemned," etc., intimating that such a plan is recommended by Mr. Shaw in using his apparatus. In this he is wrong. In his circular Mr. Shaw recommends the saving of the hypo and gold solutions in different vessels, and gives full directions for doing the same.

Mr. Shaw's patent is for a vessel, a partition in that vessel, and a filter, combined. If our readers use such an apparatus, they infringe his patent. If they do not, he cannot "prosecute" or claim that they use equivalents. The party he says he *is* prosecuting is in Connecticut. If this meets his eye, we would be glad to have his address.

We trust we shall not be called upon to give more space to this matter.

A STORY OF A TINTYPE AND THE GOOD IT DID.

I HAVE had a hard case to take to-day. Two men who were drunk, and had been on a spree for three days, wished to be "drawed out just as abstract as they were," as the one who styled himself a literary character, said. Conscious of their condition, they did it for the fun of the thing; sitting together, one in the act of handing the pocket-flask to the other; one with the stupid look, and the other with the half-crazed look of intoxication, they made an impression on the tin which I hope will make an impression on them when their spree is over, and they are sober.

Yesterday I had a similar case; and daily I meet persons who ought to have their "pictures tooken." It seems to me that if I should present to the General Court of Massachusetts my collection of drunkards, it would hurry up their deliberations.

I always make such pictures, and make them as perfectly disgusting as possible, so that the world may find "sermons on *tin;*" remembering that in a little village somewhere in Massachusetts, a reformation was effected by one of them. I will tell you how.

In a nice little cosy house dwelt a young mechanic and his loving wife. For a while they prospered, but at last the rum-shop won him from his home. In the little parlor was a small collection of daguerreotypes, ambrotypes, tintypes, etc., among which was one of the loving couple as they appeared a few months after their marriage. Well-dressed and happy, they seemed the embodiment of content. But, alas, how he had fallen!

His wife one day sadly looking upon that picture, suddenly conceived an idea, requiring on her part much risk, pain, and calculation; but with patience did she watch and wait until she met him near a tintype saloon, and by seeming playfulness and joking, she succeeded in carrying out her plan.

They sat together again and had a half-plate picture taken—the largest she could get at that time, as it was before we gave "A large 8 x 10 rosewood frame and picture for $1.50" —carried it home, and laid it in the little parlor with her collection, and left it to do its work.

She had not long to wait, for he had scarcely got over his debauch, and been one day at work, when, in the calm twilight of an autumn day, he wandered into the unfrequented room. Who knows what led him there? Walking to the table, apparently unoccupied in thought, his eyes instantly rested upon those pictures. We know not his thoughts, as he compared the two, but he took the last picture, and putting it in his pocket, made the resolution which saved him. For several months he carried it with him, but never looked at it; its simple warning was enough.

Of course, his wife missed the picture, but, like a sensible woman, said nothing, and secretly rejoiced as she noted the change in him.

Sitting beside the fire one evening, he simply said to his wife:

"The work of this is done; shall I put it forever out of our sight?"

"Oh, yes, it is dead to me!" she said, and the fire consumed varnish, film, and enamel, until nothing was left but the red-hot sheet of tin.

Their hearts again joined, and the man was saved.

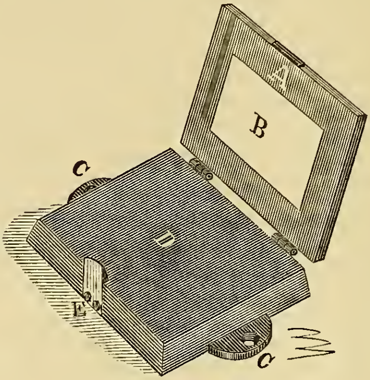
So much for a tintype; and never do I refuse to make such pictures, knowing they must have a good effect.

The Tintyper.

Massachusetts, March, 1869.

POLISHING APPARATUS.

Photographers who use an enamel, or polish, or encaustic paste upon their prints, find difficulty in keeping them flat, steady, and from being rumpled up by the rubbing. The little apparatus, of which we present a drawing below, entirely overcomes that trouble. The mounted print is laid upon the bed-plate, D, and the frame, A, is brought down upon it and fastened by the catch, E. The opening, B, in the frame, is made exactly the size of the trimmed albumen print, so that, while the frame presses upon and entirely covers the card, thus keeping it from being soiled by any of the polish, the whole of the print receives the polish, applied in the usual way. The catch, E, is made adjustable, so that all thicknesses of card-board may be accommodated. The whole is fastened to the table by screws at C, C. We have seen card and cabinet size. They are made entirely of iron, polished bed-plate, and were gotten up at the request of Mr. William Notman, Montreal, who uses eight or ten of them, and finds them to answer admirably. Messrs. Wilson, Hood & Co., of our city, are the manufacturers, as will be seen by their advertisement.



QUACK COMPOUNDS.

I have been a reader of your Journal for the past two years, and think it one of the most valuable auxiliaries an artist, who wishes to keep pace with the rapid strides of improvement constantly being made in our beautiful art, can have, and worth, to the photographer, twice the sum you ask for it; yet I think there is, at this time, a little chance for improvement.

Mr. Seely, while editing the *American Journal of Photography*, conceived a terrible antipathy to a class of secret photographic process venders, and he waged war upon them with such energy, that he soon drove them all from the field. No sooner was a secret process circular issued than Mr. Seely was on its track, and he seldom allowed more than one of his semi-monthly issues to go out without carrying the full particulars of the process to his readers.

Now, I think we have a pest among us as much to be dreaded as the secret process vender, and it comes in the shape of a set of greedy photographic stock jobbers, that cannot be content with driving a fair, honorable trade, but they must get up some cheap or worthless article, and recommend it as a necessity in every gallery. Or it is some new chemical discovery that will enable the country artists to produce as fine-toned pictures as come from the best city galleries. And when the notice of these articles comes recommended by such men as Fredericks, Bogardus, Gurney, and other "shining lights" in the photographic firmament, it makes a bait too tempting for the poor country artist to forego, when it will only cost fifty cents or a dollar a bite.

Now, I think a small space in your Journal, devoted to the exposition of this quackery, would be hailed with delight by many of your subscribers who are unable to tell bitter from sweet without tasting. A few examples would illustrate my meaning. Equal parts of starch and wheat flour that has been condemned by the cook as unfit for her use, put up in pound packages, at a cost of seven or eight cents, and labelled "Flourine," for mounting photographs, sells for thirty-five to fifty cents. Concentrated lye, such as is used for making soap, and sold by all druggists at fifteen cents per pound, is dissolved in soft water in the proportion of one pound to the gallon of water, put up in six ounce vials, and labelled "Chinese Solvent," sells for fifty cents per vial.

The receipt for this valuable article was obtained of a poor artist, by the publisher of a photographic journal (to whom, I presume, his thousands (?) of readers look up to with perfect confidence), on condition that he (the journalist) "blow" the article, and sell what he could, and divide the profits with the poor artist. This was years ago, and thousands of dollars worth of the stuff has been sold, but the poor artist has failed, as yet, to receive the first instalment of his share of the profits. Another article which has come into market, through the same channel, is the "French Azotate." It is an article which "will enable every photographer to produce that warm, rich tone so much admired in the French photographs." The proprietor of this *truly valuable* article (the aforesaid journalist), has become so noted as a vender of quack photographic nostrums, that he judged, in order to catch the gudgeons, he must put an extra scent upon the bait, so he promises that all who pay their little half dollar for a bottle of the "Azotate," shall receive "a receipt for keeping the hyposulphate of soda fixing solution in good working order for several months." This receipt, alone, he says "is worth many times the price of the Azotate;" and so it would be, if you could get it; but when you send him the fifty cents, you will get a two ounce vial full of a solution made by dissolving ten ounces of the cheap washing soda in twenty gallons of water. The valuable (?) fixing receipt is hyposulphate of soda four ounces, water twenty ounces. Really, what new and valuable discoveries! I wonder the proprietor does not get these two articles patented. I think they are about on a par with Cutting's Bromide and Balsam Patents, Shaw's Silver Saver (?), or Wing's Sliding Tablets, or Carl Meinerth's Mezzotinting.

There are many other articles that belong in the same catalogue, among which might be named, "Gum Regaline," "Hall's Intensifier," "Albumen Colors," or Aniline Dyes, "Enamelling Varnishes," "Photographic Polishes," &c. All simple and cheap preparations, which every photographer could, with only a hint from you, through your Journal, procure or prepare for himself at a trifling expense; and I think it no more than right that your subscribers should occasionally receive such hints from you.

Hoping these suggestions will meet with your approval, I remain

Fraternally yours,
C. Ferris.

Malone, N. Y., Dec., 1868.

There is a great deal of truth and force in our correspondent's remarks, but he has not read his *Photographer* as diligently as he has the advertisements of a contemporary. It has always been our policy to expose useless patents and processes, and we have been blessed in being instrumental in killing more than one. We have also repeatedly and often advised our readers against quack preparations, and published formulæ giving equally good results. Enamel and polish recipes we have often printed, and very lately. We exposed the "Chinese Solvent" in its infancy; the recipe for "Hall's Intensifier" (good for those who *will* use it) was taken from our 1867 *Mosaics*. Several substitutes for Flourine (which was once excellent) we have given. The "French Azotate" is too absurd to notice, and *needs* a "fixer" to help its sale. Neither "Chinese Solvent" or "French Azotate" were ever allowed to be advertised in any of our publications. As to the "certificates," we have been told by one party, at least, that his name was forged to one, lauding one of the compounds mentioned.

We endeavor to purge our advertising pages of everything of a catch-penny nature; and, in order that our readers may not be "bitten," they must judge of the article by the character of the house advertising them. A review of our own advertisements satisfies us that not a single article is offered in them that is not useful and advantageous to buy—*if you need it.* Some may be dispensed with, certainly, and others, though simple, are cheaper to buy than to make in small quantities.

Against the sale of such fraudulent compounds as are offered at times, we, however, cordially join our correspondent. We are happy to say that only *one concern* resorts to the low practice of pushing their sale. —Ed.

PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

The regular monthly meeting was held Wednesday, March 3d, 1869, at 8 P.M., Mr. Hugh Davids in the chair.

The minutes of the last meeting were read and approved.

The Committee on Prize Photographs reported progress, and was continued until the next meeting.

The Secretary reported that he had visited Girard College, and made all the necessary arrangements for the admission of members into the grounds.

A letter was read from Mr. Edward L. Wilson, inclosing a communication from Mr. J. C. Burritt, of Ithaca, New York, in which Mr. Burritt mentions having used, for two or three years, a similar form of diaphragm to the one described by Mr. Lea in a recent number of the *Philadelphia Photographer*. He says: "I was driven to the invention by the difficulty encountered when photographing in the deep, dark glens with which this neighborhood abounds, often spoiling the upper part of my view while the lower part was under-exposed." A number of stereographs were shown to illustrate the advantage of such an arrangement. Several views were taken with and without the new diaphragm, the advantage being greatly in favor of the stop placed at an angle. Accompanying the views, Mr. Burritt offered his diaphragm for examination, which, in principle, is similar to Mr. Sutton's.

The Secretary exhibited a specimen of Dr. Liesegang's papyroxyline or paper pyroxyline; also a negative made with the same. The film adheres remarkably well to the glass, is structureless, and dissolves well in alcohol and ether, but does not appear to possess any decided advantage over good pyroxyline made from cotton.

The Secretary mentioned a plan he had used with some success for rendering old red collodion fit for negative use: Add to 5 ounces of red collodion 1 ounce, or, in some cases, a trifle more of Newton's antibromide collodion. In a short time after mixing, the color of the collodion will change to a lighter shade, sometimes becoming a light straw color. Several negatives were shown, made with collodion sensitized six months ago with iodide of ammonium and bromide of potassium, useless for any purpose, but changed by the above process into excellent negative collodion.

None of the members present were acquainted with the formula by which Mr. Newton's collodion was made, and could give no information as regards the chemical action.

On motion, adjourned.

John C. Browne,
Recording Secretary.

NEW YORK CORRESPONDENCE.

At the March meeting of the Photographic Section of the American Institute, on the 2d ultimo, Mr. Newton made his final report as to the McLachlan alkaline bath. Longer use of this bath had confirmed him in his earlier opinion, and he felt fully justified in urging the craft to adopt it. He called attention to the remarks in the *Photographic News*, in which the editor of that journal states that he (Newton) had overlooked the fact that continued action of light on a solution of nitrate of silver reduced the nitrate of silver and liberated nitric acid. Mr. Newton contended that any such fact could have no possible bearing upon the subject, unless it is to be inferred that sufficient acid had been liberated to change the bath from an alkaline to an acid one. He called attention to the fact, that when he first reported upon this subject, that he then exhibited with the negatives a portion of the bath, and which, by the use of litmus paper, was proven to be intensely alkaline. Mr. Newton said, in conclusion, that it was evident that a radical change takes place in the bath from the action of the solar ray; such change is not caused by the liberation of nitric acid, as claimed in *Photographic News*. Any bath which is alkaline *before* being exposed to the sun, cannot be made to work by the addition of nitric acid, unless enough be added to make the bath acid to litmus paper; therefore it was claimed by Mr. N. that nitric acid could not be present in such baths they being alkaline, and that the *News* theory is consequently wrong. He had also found that the addition of silver to an alkaline bath, after it had reached proper working order, did not affect it, but that the addition of water, no matter how pure, necessitated its re-exposing to the sun.

Mr. Newton exhibited a large number of imperial cards, which were especially fine as specimens of lighting under difficulties, being all made with light from an ordinary north window in his house, and would serve to prove to many of our "guild" that if such work can be made under such difficulties, how far short many of us fall who have every convenience of lighting. He called especial attention to the working of the lens with which all but one of these portraits was made, a half-size Harrison tube of American Optical Company's make, and stated that said tube worked quicker, cut sharper, and was, in all respects, better than his 4-4 Voigtlander, which he knew to be a good one. The one other picture was made with a Schnitzer patent portrait combination, which he considered as a superb instrument; it was intended for ½-size for groups, but would work, as seen by the print, for imperial cards by removing the back lens, and produce a picture correct in its drawing, and sharply cut over the whole plate. I shall again refer to these and other lenses before closing this letter.

Mr. Kuhns presented, in behalf of Mr. S. M. Fassitt, of Chicago, a 10 x 12 portrait of an elderly gentleman—a la Salomon—the whole light being upon the face, of pleasing effect, and christened by Mr. Fassitt as the "Journey Picture." The effect was produced in printing in this manner: Between two very fine wires about two feet long, in the centre twist tight enough to hold firmly a wad of cotton, about one and a half inches diameter; place the printing-frame and its contents in the sun, and at such a distance from the negative as will enable you to cast a shadow of the proper size upon the face. Keep moving this wad of cotton by revolving the same by a simple movement of the thumb and fingers, thus keeping back that portion of the picture, giving you the power to print the balance as much as you may choose; the fineness of the twisted wire, combined with its movement and change of position, prevents its leaving upon the print any trace of its shadow—a simple and ingenious dodge well worth adoption.

Mr. Houston exhibited a new filter, of shape much like the chimneys used upon kerosene lamps; to use which it must be inverted, and the neck or narrow part stuffed with cotton; the lower part was flared off or ground away on one side to bring the other to a point, by which the liquid all followed to that side, and flowed away in an unbroken stream.

The new patented filter of Mr. V. M. Griswold, of Peekskill, New York, was also exhibited, and will, no doubt, be fully described in your pages.

Mr. Krueger exhibited his new tripod-rest, which I described last month; also some fine 8 x 10 photographs, in making which it was used.

Mr. Gardner complained of the trouble he had in mounting on so-called tinted board; he could not succeed in making his prints stick. Mr. Kurtz said it was due to the lithographic ink, which was greasy; he thought the addition of a small portion of gelatine to the starch would overcome the difficulty. Mr. Anthony said a wash of weak alkali would remove the trouble, and prints would remain. Mr. Hull objected to photographers going into the manufacture of soap, which would be the case if the plan proposed by Mr. Anthony was followed; he was also of the opinion, that if the grease in the ink was saponified by the addition of an alkali, that it would then be soluble in a watery, starch paste, and would spread over and injure the white portions of the mount, independent of any injurious action which a solution of soap might have upon the print.

Mr. Kurtz pleased all eyes by a large exhibition of his unsurpassed photographs; one especially, of a lady, every portion of the light being from behind, the whole face in shadow, yet all as distinct and transparent as could be wished for. He also exhibited a series of burnt-in photographs, plain and in colors, which led to many questions, and the expression of flattering encomiums upon the go-aheaditiveness of this enterprising gentleman. One burnt-in picture in colors on a 4-4 porcelain plate, of a lady, was especially fine, brilliant, and vigorous, yet soft, and in every way most harmonious in its effect. It was experimented upon with knife-blades and pins, but every effort to scratch or deface resulted in failure.

In connection with this allusion to Mr. Kurtz, and his efforts to advance our art, I feel fully justified in saying that I never met with a photographer who was less inclined to follow the beaten and well-worn tracks of his predecessors than he is, unless he felt convinced that all had been accomplished in any given direction that could reasonably be anticipated; in other words, he appears more intent upon the production of better work, than upon the accumulation of dollars, and the production of every-day work of ordinary character; also that he has no secrets, and talks freely of all he does, under the belief that the standard of photography can alone be elevated to the dignity of a first-class position, by the dissemination of *every* item of practice and experience for the benefit of the whole.

In letters long since written by me for your Journal, I have called attention to his superb porcelain work and carbon prints, which received at the Exhibition of the American Institute the highest premiums; to his method of roughing the varnished surface of a negative with finely-ground pumice-stone, to give the lead-pencil a biting surface; to his introduction of that famous novelty in its day—photosculpture; his reproductions of paintings, mounted like the French upon plate paper, of which the "Rock of Ages," so well known by all, is a fair specimen, and of which over 5000 copies have been sold at $5 each; his photographs on yellow paper, and the well-known Rembrandt or shadow effects. I cannot doubt but that you, Mr. Editor, will agree with me in this tribute to the energy, skill, and progressiveness of Mr. Kurtz, in complimenting whom I do not wish to take at all from the merits of others, but alone to pay to his efforts that mark of approbation to which, in my opinion, they are so fully entitled.

In one of our city daily papers, whose editor or reporter is as ignorant of photography as is a zoophyte of the mechanism of a watch, much has of late been said about the long since exploded humbug of ghost or "*spirit*" photographs, thereby adding largely to the profits of dealers in this simple outrage upon the credulous and unsuspecting.

Mr. Mason visited one of these fellows lately, but he knew too much to find out anything—they would not work for him, or while he was there. Mr. Mason exhibited three carte-de-visites made by one of these accommodating dealers in the mysterious; one of an elderly *maiden* lady living in this city, one of a gentleman who had been "sold" with his supposed *grandmother* by his side, one of a lady who had been "done for" in like manner with her *mother* by her side—all strangers. By a curious combination of circumstances, it was discovered that the elderly *maiden* lady was *grandmother* to the gentleman and *mother* to the lady—both of which parents were, of course, dead. It is beyond doubt, that both the spirits or ghosts, so termed, are from a positive of the aforesaid maiden lady. Barnum was more than half right when he stated that the *public required to be humbugged*, and he believed he had as much right to administer the dose as any one else. Their method of production being no novelty, I forbear entering upon details.

The lenses to which I have before referred in this letter, are manufactured by the New York Optical Company, of which Messrs. Blunt & Co., 179 Water Street, New York, are the general agents, one of which, Schnitzer's portrait combination, was reported upon by a committee appointed by the Photographic Society of Philadelphia (see report in this Journal, June, 1866), and which has now been so improved as to recommend it to the consideration of all interested. As stated, the size No. 1, for half-size, of short focus, and quick working, including an angle of 70°, and working without distortion, is a decided novelty. With this lens the committee made a $\frac{1}{2}$-size negative with subjects placed respectively at a distance from the lens of 11, 13, 15, and 17 feet, all admirably in focus and free from distortion. By removing the back lens the focus is lengthened, so that an imperial card may be made as stated.

Another novelty, now first introduced with the above by the same company, and invented by Schnitzer, is the hemispherical lens for views, copying, etc., similar to the "Globe" in its front lens, with a plano-convex lens at the back. It is claimed that this is free from distortion, working in one-fifth the time of the "Globe," without the "ghost," and including an angle of 90°. The back lens can be removed, doubling the length of focus, and giving a lens well suited to ordinary landscape work, where subjects of an architectural character are not introduced.

Both of these novelties in the way of lenses, as now made and in the market, have been tested by Mr. Newton, and such of these statements as are not of my own knowledge are of his.

Before closing this letter, the writer desires to have it understood that he does not feel called upon to notice matters which may be brought to his attention, unless he believes them of value and merit; he is not required to visit galleries, inspect material, or test processes, or favorably to review photographs sent for that purpose; in other words, his labor, such as it is, is gladly and freely given, without money and without price, having in view the advancement of an art to which his leisure hours have for years been devoted.

C. W. H.

THE BOSTON PHOTOGRAPHIC UNION.

Meeting called to order by the President, G. H. Loomis. The records of the last meeting were read and approved. The President then read extracts from the preamble, constitution, and by-laws, explaining the objects for which we are organized, and requested all those wishing to join our Union to hand their names to the Treasurer. Quite a number of new members were enrolled.

Mr. Black, Chairman of Executive Committee, reported progress on the subject submitted to that committee in relation to procuring halls for exhibition and meeting of the National Photographic Union. Several halls had been examined, but no final decision arrived at as yet.

On motion of Mr. Southworth, it was voted,

That a committee of five be raised to see each photographer in Boston and vicinity, and present the advantages of this organization, and solicit their co-operation.

Mr. A. S. Southworth, F. J. Foss, Joseph Babb, G. W. Warren, and H. W. Tupper, were appointed as that committee.

On motion of Mr. Joseph Babb, it was voted that the number of the committee be increased to nine.

Mr. Critcherson, of Worcester, Mr. Davis, of Portsmouth, Mr. T. N. Phillips, of Lynn, and Mr. G. C. Gilchrist, of Lowell, were added to the committee.

On motion of Mr. F. C. Low, it was voted,

That a committee of three be appointed to see if arrangements cannot be made with Professor Cook, of Harvard University, to deliver us a lecture or lectures, on photography and photographic chemistry.

Mr. J. W. Black, F. C. Low, and J. H. Dodge, were appointed that committee.

On motion of Mr. Southworth, it was voted,

That the Executive Committee cause to be printed a sufficient number of our Constitution and By-Laws for the use of the Union.

Voted to adjourn.

FRED. C. LOW, *Sec.*

Immediately after adjournment, Mr. Black gave us an exhibition of his stereopticon. An invitation had been extended to all photographers to bring transparencies from such negatives as they might possess of any interesting subjects.

Messrs. G. H. Loomis and T. R. Burnham furnished a few interesting ones, and Mr. F. N. Spear furnished a very large number of California and Western views. The rest were from Mr. Black's own collection. All were very interesting and instructive.

WRINKLES AND DODGES.

NEGATIVES packed between dark tissue-paper double thickness, same size as negative, or any soft paper that has not been bleached too much, may be handled quite roughly without injury, and will travel well. I have tried it for the past five years.

H. R. LINDSLY.

I HAVE always found trouble in getting paper in solar printing to lie down. It will kink more or less even when it is tacked well. I have a very simple remedy; I get 16 x 20 plate-glass, get it framed and hung by hinges, and my printing-board then padded; all I have to do is to slip my paper in and shut the door, and fasten it with three sound hooks, and the paper is all smooth and stays in its place. It works splendid, no trouble, and I cannot see but what it prints just as fast.

L. H. FREEBORN.

FOR restoring or forming a black surface on the interior of lenses, or other brass tubes, I can find nothing better than the following:

Make a saturated solution of copper and nitric acid; put this upon the surface to be blackened, and apply sufficient heat to burn the solution off, or turn it black; brush off any particles which may adhere to the surface, and you will have a dead black surface that will not reflect light, nor rub off. Sometimes it may be necessary to apply several coats, but it can be done in a few minutes. Of course this recipe will not do for tubes that are soft soldered, but for others it is perfect.

D. EDSON SMITH.

THERE is a compound of silver which a photographer might unwittingly produce—the fulminate of silver. If a solution of nitrate of silver containing nitric acid be warmed, and alcohol added, a white precipitate forms, which is the compound in question. A photographer evaporating to dryness an acid bath which had been long in use, and contained alcohol, might find himself and his dishes elsewhere towards the termination of the boiling down of the solution.—M. DAVANNE.

M. VINOIS presented the following formula for negative varnish at a late meeting of the French Photographic Society. The plates to be warmed when varnishing:

Alcohol,	100 cub. cents.
Gum Sandarac,	10 grammes.
Benzoin,	10 "
Gum Elemi,	10 "

The materials are dissolved upon a water-bath, and the solution clarified by standing, and decanted; after applying, dry the negatives at the fire.

MY method of keeping up an even temperature for my bath in winter, is as follows:

I set my bath (10 x 12) in a box two feet long, ten inches deep, and twelve inches wide, covered except where the bath sits in the end of the box. Behind the bath I have a square tin vessel eleven inches long, ten inches wide, and eight inches deep, with a place at one corner (for filling and emptying) about the size of a common bottle-mouth. This vessel I fill with water, and set on my stove until it is hot, and then set it behind my bath, and it will keep warm for twenty-four hours. Not being near enough to touch the bath it will not overheat it. Besides, it is an excellent thing to set the toning-dish on when toning, being just about the proper heat for that purpose after sitting behind the bath all day. Another thing I have been using, with good results for weak negatives, is a varnish made by adding a saturated solution of gum gamboge in alcohol to any good negative varnish. This will make a weak negative print as slow as one of ordinary intensity, and I think it a very good thing.

Hoping these ideas may do some poor photographer good, I am,

Yours, &c., A. D. Wiles.

Will you allow me to describe my plan of filtering collodion, or of making a collodion filter, for the benefit of us photographers?

Take a bottle that will hold 1 pound, with a neck one inch or more long, remove the rim by the alcohol string, and with a file wet with dilute sulphuric acid (acid, 1 ounce, water, 1 ounce), dress off the edges of the bottle inside and out.

With a round file make the inner edge, bevelling out a little; now with a glass tube the proper length, and a strip of Canton flannel (best), 1½ inches wide, and long enough, so that when it is wound around the tube, it will fit snugly into the mouth of the bottle. Now fill the bottle with the collodion to be filtered, insert the tube to the bottom of the bottle, and carefully twist the roll of Canton flannel to its place; select a wide-mouth bottle the proper size, and with glue or mucilage stick a fold of wash-leather or two around the neck of the bottle No. 1, and insert it in the wide mouth after inverting it and giving it a quick downward shake to clear the tube of unfiltered collodion. The Canton flannel may be wound so as to be tight or loose, and if it don't filter the collodion clear, what will (if properly fixed)? A clean piece of flannel can be used for every filtration, and it is not so easy to get it too tightly wound. If you are not in a hurry for your collodion, you can glue the wash-leather on the first bottle, and let it dry, and dress it to fit the neck of the other bottle with sand-paper.

A good thing always costs something, but this is the best thing I have that *costs—not much.*—National Photographic Association.

Hennepin, Ill., February 2, 1869.

PHOTOGRAPHIC SUMMARY.

BY M. CAREY LEA.

ENGLAND.

India-Rubber Coatings.—Some have proposed to help the permanence of positive prints by coating them with India-rubber dissolved in benzole. It is now affirmed that this results in the production of white, opaque spots, ruinous to the negative.—*News.*

Exposure to air and light seems to have rather a beneficial than an injurious effect on silver prints. I have six large prints purchased some ten years ago, of which four were placed in a portfolio, and two framed and hung up. Those in the portfolio have *all* faded; the other two are still in fair condition, but, to an experienced eye, they show signs of weakness. These six were all from a set made by one operator.

Old and New Developers.—An animated discussion has been taking place on this subject, as to whether an old or a new developer tends to softness and detail on the one side, or harshness on the other.

Whatever influences in development tend to softness, will, if exaggerated, tend to fogginess, and whatever helps brilliancy, will, if exaggerated, produce harshness, because harshness and fogginess are the extreme terms of development.

An abundant quantity of acetic acid in the developer always increases the brilliancy of a picture (of course, at the expense of softness), and increases the danger of harsh contrasts. As age in the iron developer acts very much in the same way as acetic acid, its tendency must undoubtedly be held to be unfavorable to softness.

There was a time when brilliancy was the one great thing sought after in negatives. The blacker the blacks and the whiter the whites, the better; so, too, we think now, but formerly this was the great thing, now this is by all good operators held to be of less importance than the production of plenty of half-tone. The best photographer will always be he that succeeds in combining a large quantity of half-tone with enough of deep shadow and high light to bring the half-tone fully out.

A perfect picture, as respects gradation, is one that shows plenty of half-tone with, just at the deepest point of the shadows, full black, and, at the highest point of the light, pure white, together with all degrees of half-tone. As soon as the pure white covers more than a very small spot, it becomes chalky; as soon as the deep black does so, it looks like court-plaster.

Those who cannot manage their baths and tend to foggy pictures, will always like old developers, because these enhance the brightness of the picture. Those who keep their baths in first rate order, will like a nearly new developer, on account of the better distribution of the deposit of silver which it gives, and the greater harmony of effect. It is an annoyance to have a developer that is continually changing in this way. For this reason the sugar developer is very satisfactory, as it operates from the first like a developer mixed just long enough, and continues for a long time to give exactly the same results. The formula which I have given in my manual, is one that I have used exclusively for a long time.

As in the course of this controversy, both parties have done me the honor to cite my expressed opinions in support of their views, I take this opportunity to say that I have never entertained any but one view, and that I have expressed very frequently and pointedly, viz., that rapid developments of wet plates tend to softness, and slow ones to harshness. This has been said by me so very clearly, that I am wholly at a loss to understand how I can possibly be cited as holding any different opinion.

In fact, the only quotation made by the *British Journal*, is one from an article that appeared in its own columns, in which the sense of the passage is entirely destroyed by the substitution of the word "stiffness" for "softness," as I wrote it. This typographical mistake was so completely contradicted by the context, that it seemed hardly necessary to correct it; I, nevertheless, did so at once. The error occurs on page 528 of last year's journal, and the correction will be found conspicuously made at page 600 of the same volume.

Coloring Zinc.—Clear with sand and dilute sulphuric acid, and immerse for a moment in a solution of 4 parts sulphate of nickel and ammonia in 40 of water, acidulated with 1 part sulphuric acid; wash and dry. The black coating adheres firmly.—*News.*

[To make this solution, dissolve 3 parts sulphate of ammonia and 7 of sulphate of nickel in 100 water, and acidulate with 2½ of sulphuric acid.]

New Optical Glass.—Dr. Phipson mentions that Messrs. Chance, the manufacturers of what is probably the best optical glass in the world, are now occupied in manufacturing an entirely new glass, specially intended for photography. This glass, of which the composition is not stated, is to have the almost incredible density of 4.4.

GERMANY.

Papyroxyle.—Dr. Liesegang publishes the formula that he employs for making this substance—an honorable contrast with those who make a secret out of every slight modification that they consider to be useful.

He mixes equal volumes of sulphuric acid of the usual strength and nitric acid of 1.40°. The paper used is fine tissue-paper, and is plunged in after the mixture is cold. Different papers require differences in the acid mixture, which can only be determined by experiment; much will, therefore, always depend upon the intelligence of the operator. The paper is to be left in the mixture until a specimen taken out, and washed, and dried, dissolves completely in a mixture of equal parts of alcohol and ether.

The washing and drying of this preparation is effected much more rapidly than in the case of pyroxyline. The wet paper, when hung over a string, is completely dry in from twenty to thirty minutes.

For this preparation Dr. Liesegang claims the following advantages in the regular wet process: Absolute absence of structure and greater sensibility of the film. The papyroxyle is perfectly soluble in the mixture of alcohol and ether, no trace of undissolved portion is left, and this perfect solution adds to the fineness of the film. According to experiments made by some German photographers, the papyroxyle gives more detail to the shadows. The salting is the same as for negative cotton.—*Photo. Archiv.*

Proportions of Alcohol and Ether in Wet Collodions.—The disposition among German operators seems to vary, as it does here. In a discussion before the Photographic Society of Berlin, it was held on the one side that 3 parts alcohol to 1 of ether was the best; on the other, that an equal proportion of each was more generally useful; which last opinion was the more generally concurred in.—*Ibid.*

Retouching with Lead-Pencil.—Schulz advises, before attempting this, to rub the varnished negative with turpentine.—*Ibid.*

SALAD

For the Photographer.

Art first observes, then selects.—*Schiller.*

Edinburgh wants a photographic exhibition.

They paint photographs of statuary in London.

Do not forget our premiums. See page 68, last issue.

"Leaf Prints." By Professor Himes. $1.25, post-paid.

Have you joined the National Photographic Association?

Are you getting ready for the June Exhibition?

The Hamburg Photographic Exhibition was a success.

There are several shops in Paris devoted entirely to the sale of photographs.

"How to Paint Photographs" (our new publication, $1.25), sells wonderfully.

Spare hours may be put to good use by learning "how to paint photographs."

Sir Thomas Moore's skull has been photographed by magnesium light.

Are you a member of the National Photographic Association?

We have seen a photograph on mother-of-pearl. It is very rich and beautiful.

Photographs on toned paper ("aux deux crayons"), are becoming popular in Europe.

The Boston Exhibition in June will be a grand affair. Have you applied for space for your pictures?

At one of the London theatres, one of the characters impersonates a photographer and a burglar. Nice combination.

Mr. J. Carbutt, of Chicago, has finished an order for 50,000 cabinet-size prints for a biographical work.

In Munich, beggar children are photographed previous to being placed in charitable institutions. So they are here.

Mr. Mayall, an English photographer, travelled a mile in four minutes in his velocipede.

Lamartine died on the last day of February. M. Adam Salomon took his portrait on his death-bed.

"We think that the practice of printing from leaves, ferns, and grasses is worth more study than it has yet received."—*Photo. News.*

A Photographer's Relief Fund is about to be organized in England. This subject we hope will also be considered by our National Association.

Nearly two hundred photographers belong to the German Photographic Association. Quite as many belong to our National Association.

The wives of the Vienna photographers recently gave a ball in aid of a benevolent fund for the widows and families of deceased photographers. It was a great success.

"Spirit of the American Journals," is what the *British Journal* calls several pages of extracts from our pages. It shows a *good* spirit.

All articles without signature in this Journal are by the Editor. Sometimes Mr. Lea is blamed for them. His name always accompanies what he contributes to our pages.

To Our New Subscribers: *Our last volume* is full of precious information for every photographer in the land. The series of articles on "Art Principles Applicable to Photography," running through the whole year, are alone worth a year's subscription. See advertisement of our volume for 1868, and secure the numbers before they are all gone.

The English photographers are discussing the justice of showing proofs before pictures are ordered. It seems to us the interests of all concerned commend the practice. The honest and thrifty photographer certainly does not wish to send out bad and unsatisfactory work, nor the customer desire to have it. Make each picture secure another customer. That is the *best* way.

A meeting of one hundred photographers was held in Hamburg during the Exhibition, to organize a society to meet every two years in some large German town, its objects to be the establishment of photographic copyright, the creation of a relief fund for widows, the starting of a journal as its organ, the institution of exhibitions, &c. Capital! We wish them success. Let us not be behind.

While our friend, Mr. J. W. Black, of Boston, was photographing a group of the aldermen of that city a short time ago, some greenhorn came in and declared them to be "Pickpockets—every one of 'em." Mr. Black was astounded, the aldermen confounded, and their accuser dumbfounded, particularly when Mr. Black told him his informant had sold him. He had had his pocket picked, and a friend seeing the dignified body going in, told the fellow they were pickpockets. It was a joke.

OUR PICTURE.

Having regaled our readers with three excellent examples of *legitimate* portraiture in this volume, we now vary somewhat, and at this time present them with one of the *genré*, or composition style. It is from negatives by Mr John L. Gihon (Gihon & Jones, No. 812 Arch Street, Philadelphia), one of our rising young artists, and is eminently attractive in many ways, teaching many good lessons.

Mr. Gihon is particularly deserving of credit in this case, as not only were the negatives and prints produced by him, but the most of the accessories are of his own manufacture. The background is one of his own design. The accessories are made to suit the taste, of laths, old paper boxes, etc., stretched over with glue-sized muslin, and painted a proper color. Made in this way they are much lighter than solid rustic accessories or solid rocks, and answer every purpose. Mr. Gihon has an endless variety of shapes made in the same way.

This style of picture has come greatly in demand since the introduction of the beautiful cabinet-size pictures, and Mr. Gihon is making some of the best we have seen. Our little subject behaved admirably in this instance, doing her part well to make up a very pleasing picture worthy of study.

The beautiful tinted mounts are from the factory of Mr. A. M. Collins, of this city. Our readers are probably not aware that the greater portion of the photographic cardboard used in this country, is manufactured by Mr. Collins. He has lately introduced some very beautiful styles of tinted cards for this size picture. Some experience difficulty in mounting on these boards, on account of the greasy ink used in lithographing the tints. In our experience, the best and most adhesive paste for such tints, is made of the best white glue. It invariably sticks. Our readers will also notice Mr. Kurtz's plan in the New York correspondence. Prints certainly stand a better chance of permanency on such mounts, and they will no doubt become very popular.

Editor's Table.

THE NATIONAL ASSOCIATION.—Photographers who have not yet joined the National Association should do so now, and begin to prepare their pictures for the Exhibition. It will certainly be a success, and the day rapidly approaches when you will be proud to frame your certificate of membership, and to hang it in the most conspicuous place in your reception-room. Join now, and send pictures, models of tents, dark-rooms, etc., to Boston in June. Secure your space. Read the following letters:

MR. E. L. WILSON,
Secretary National Photographic Association.

DEAR SIR: I have duly received your announcement that I have been elected an honorary member of the National Photographic Association, and beg to tender my best thanks to the members of the Association for the great honor they have bestowed on me by this act. As a sign of my gratitude, I send a first letter for the Association's organ, and shall from time to time communicate you what I think may be of interest to you. Will you please send regulations for the Boston Exhibition?

I consider exhibitions a great lever for national photography, and hope yours may have as many and more good effects even than ours had at Hamburg.

Believe me, dear Sir,
Very truly, yours,
DR. EDWARD LIESEGANG.
ELBERFELD, Feb. 25th, 1869.

EDWARD L. WILSON, Esq.,
Secretary National Photographic Association.

MY DEAR SIR: I esteem it a great honor to be elected an honorary member of the National Photographic Association, and beg, through you, to express my thanks to those members who were instrumental in effecting the election. I shall endeavor to be present with you at the next convention in Boston, in order to gather fuel and fire from the scintillations of congenial spirits. From this Association I have great expectations, which must inevitably be realized in time—expectations of seeing photography advance with rapid strides, and finally rise to perfection by reason of the concentration of action brought to bear upon it, and of witnessing the annihilation of all petty jealousies among the craft. I sympathize with this movement with all my heart, and shall devote my energies to promote the attainment of all that it aims to effect.

Believe me to be,
Yours, faithfully,
J. TOWLER.
GENEVA, Feb. 20th, 1869.

"THE RIPENING OF THE LEAF," is the subject of one of Thomas Moran's charming landscapes. It has just been reproduced by chromo-lithography, from stones drawn by the artist himself, and is advertised in our *Specialties*. The subject is a most charming one, and the chromo very beautiful. We shall endeavor to review it more fully another time.

LOOK OUT FOR HIM!—A German calling himself Dempt, has been collecting wastes from photographers to refine, and swindling them out of the returns. Mr. D. H. Anderson, Richmond, Virginia, sounds the alarm. He says: "The waste deposit obtained from me was worth about $100. He left without making any return to me, and swindled another gentleman out of most of his. I heard a man by the same name had run off with the wastes of several parties in Chicago. I am willing to contribute liberally for his apprehension. Have him arrested."

Another man, named Phillips, an operator, lately of Pittsburgh, is reported to us as worthy of being watched. We have his carte.

NEW YORK.—A hasty visit to New York a few weeks ago, confirmed our idea that the prospect for business the coming year seems very cheering. The most important thing we noticed was the removal of Messrs. E. & H. T. Anthony & Co., from No. 501 to 591 Broadway. Although they had a handsome store before, this one greatly exceeds it in that particular, as well as in convenience. Besides a large stock-department, they have others for stereoscopic pictures, chromos, chemicals, etc. Each department under a special posse of active employees, all working together like harmonious chemicals, and producing extensive results, satisfactory to all concerned.

Messrs. C. D. Fredericks & Co. we found making preparations to move up-stairs, giving way on their first floor to a business that necessarily requires it more than they. They do not calculate on doing any less business, however.

A visit to Mr. William Kurtz enables us to indorse all our New York Correspondent says about him on another page. He moves soon to handsomer and better quarters. Mr. J. S. Notman is with him.

Altogether, business looks bright in New York, as well as in Philadelphia. Our Eastern, Western, and Southern friends speak hopefully.

Mr. Richard Wearn, Columbia, South Carolina, whose gallery was recently destroyed by fire, is opening new and handsomer rooms there, and will, we trust, be more prosperous than ever. He is deserving of it.

Mr. H. H. Cole, Peoria, Illinois, who was also burned out a few weeks ago, has erected a handsome building on the old site, one hundred and twenty feet deep, and fitted it up in elegant style. Mr. Cole is one of the pushing, *live* kind, not to be overcome by disaster, and we wish him every success. May he soon retrieve his losses.

Photographs Received.—From Mr. D. R. Clark, Lafayette, Indiana, a fine photograph of the Judges of the Supreme Court of Indiana, which is very creditable to him. Also an admirable picture of the locomotive "Champion."

From Mr. N. S. Howe, Brattleboro, Vermont, a number of very creditable cartes of subjects well posed and skilfully lighted. The prints are first class, and the tones rich and pleasing.

The same may be said of several cabinets from Mr. S. W. Douglass, operator for Mr. J. D. Cadwallader, Marietta, Ohio. Mr. Douglass is a careful and tasty poser, but needs a little more attention to his lighting. The faces are too uniformly of one shade; lack contrast and the play of half-tones, which add so much to the charm of good pictures.

Messrs. Hoelke & Beneke, St. Louis, Missouri, have favored us with some beautiful stereos, among which is one of "General Grant's Farm House," put up by his own hands, eight miles west of St. Louis. They are accompanied by a copy of an autograph letter of General Grant's, dated 1859, applying for the post of County Surveyor for the County of St. Louis.

Mr. R. D. Ewing, Toronto, Canada, issues a monthly photographic circular to his customers, adding many useful practical hints, which will increase greatly its popularity and value.

Mr. H. B. Hillyer, Austin, Texas, has sent us some very creditable examples of photography, very much superior to former ones received from him. He writes us: "My improvement is due entirely to a careful reading of your Journal and other publications."

"Little Nell," is the title given by Mr. W. J. Baker, Buffalo, New York, to a very fine 8 x 10 picture by him of a little girl, lighted in the *Rembrandt style.* It is most effective and beautiful, and a capital study, well worthy of being placed in every studio. Mr. Baker has placed copies in the hands of our publishers for sale. See *Specialties.*

The French and German photographers are now retouching their negatives almost altogether, and securing some fine effects. We have lately examined a large lot of them just received by Messrs. Wilson, Hood & Co., from Messrs. Loescher & Petsch and Reutlinger. They are admirable studies.

Mr. F. B. Gage, St. Johnsbury, Vermont, has favored us with some more of his beautiful winter views from dry plates. Nothing could be much more perfect than they are. Mr. Gage advertises them for sale in *Specialties.*

We desire to call attention to the advertisement of Mr. S. Hunter Smith, for Stereoscopic Views. Mr. Smith comes to us with the highest recommendations. He is a cripple, being unable to walk, but his indomitable energy has secured him a good reputation and a nice business.

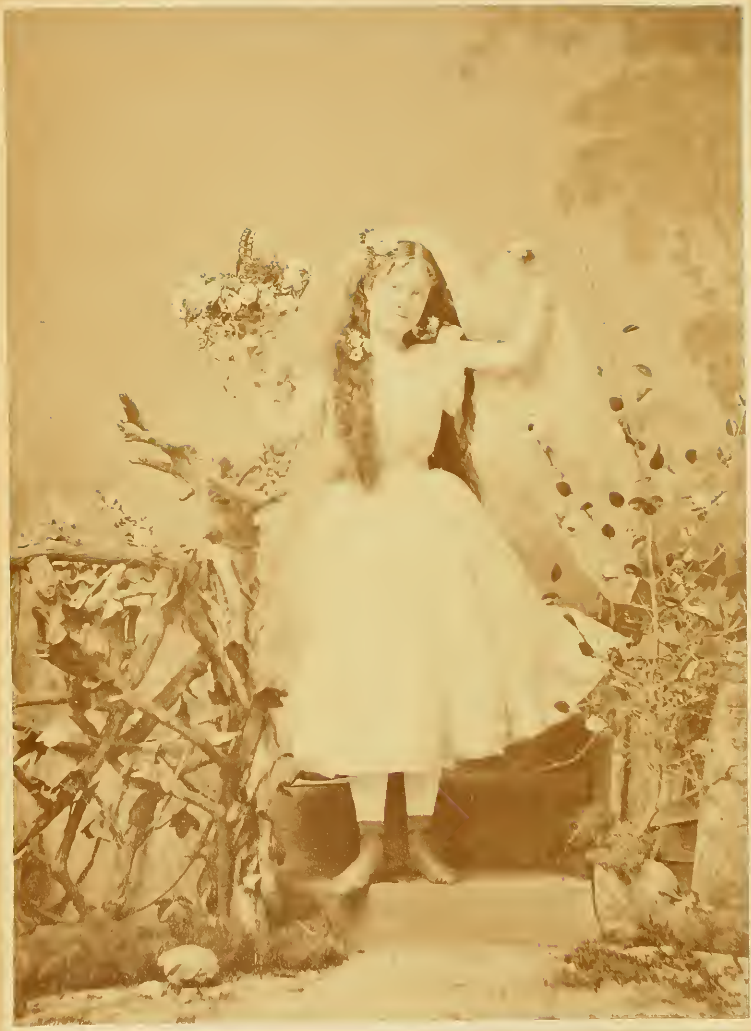
The Toronto Photographic Society meets every other Tuesday. The following is a list of the officers for the year 1869: E. J. Palmer, President; R. D. Ewing, 1st Vice-President; J. Hay, 2d Vice-President; J. H. Noverre, Secretary; D. C. Butchart, Treasurer; Exec. Com., J. Turner, W. O'Connor, W. A. Cooper.

Mr. S. M. Smith, Listowell, Ontario, says: "Send me your Journal for this year. I have already got the worth of my money out of the two numbers I have already seen."

Messrs. L. W. Seavy & Co., No. 684 Broadway, New York, are manufacturing fancy painted backgrounds for the most eminent artists in the profession, and their work is said to be very popular.

Mr. Gaffield's admirable and entertaining article on Leaf Prints will be read with interest. We said in this column in our last issue, that our readers would find it on another page. It was unavoidably crowded out, but is even more seasonable now. If our readers could see the beautiful productions of Mr. Gaffield, they would all invest in Prof. Himes's book, and go to work at making leaf prints.

We print this month 8 pages over our usual number. So crowded we cannot help it.



Boston Public Library.

MAY QUEEN

THE

Philadelphia Photographer.

Vol. VI. MAY, 1869. No. 65.

Entered, according to Act of Congress, in the year 1869,
By BENERMAN & WILSON,
In the Clerk's office of the District Court of the United States for the Eastern District of Pennsylvania.

THE NATIONAL EXHIBITION.

The Executive Committee of the *National Photographic Association* direct attention to the following amended

RULES OF THE EXHIBITION.

The Exhibition will open June 1st, 1869. Applications for space will be received and answered until May 10th—time extended.

Articles for exhibition must be sent, *freight prepaid*, addressed to the local Secretary, as below, between 1st and 25th of May.

A list of articles must accompany each package, and a *duplicate list* be sent per mail to the Local Secretary.

Exhibitors should put their names on their pictures, and those wishing to dispose of their productions, will send full particulars, together with their list, to the Secretary.

All articles will be submitted to a jury for admission, and none can be withdrawn until the close of the Exhibition.

Articles sent will be unboxed, placed, and re-boxed without expense to exhibitors, unless stipulations to the contrary be made with the exhibitor.

All applications for space must specify the class of articles, and the amount and *kind* of space required, whether *floor* or *wall* room, and be addressed to

G. H. Loomis, *Local Sec.*,
No. 7 Tremont Row, Boston, Mass.

See further announcement herein.

OUR NEXT PRIZE.

As there were several good results from our last (and first) experiment of offering a *prize* to our subscribers for the best negatives and prints sent us by parties competing, we are encouraged to try the same thing again. We, therefore, offer the following:

For the best two portrait negatives, and prints therefrom, size suitable for our Journal, $25.

For the best two negatives and prints therefrom, size suitable for our Journal, of the *genre* or composition style, group or otherwise, $25.

For the best two negatives and prints therefrom, of a landscape, size suitable for our Journal, $25.

Negatives and prints will be received from competitors until September 15th, and no longer.

They will then be submitted to competent judges, who will award the prizes according to their judgment.

Both negatives must be of the same subject.

Each competitor *must* prepay the express charges on his parcel, or it will not be received.

All negatives must be accompanied by a print from the same, or they will be rejected by the judges. We will not undertake to print for delinquents.

All competitors will receive a set of prints of the class for which they compete *gratis*, except those who send negatives without prints, or prints without negatives.

Please notify us when your parcel is sent.

We cannot return rejected negatives, or *any* that are sent for competition.

Please send no work with apologies.

We hope to see a much more general competition than there was before, and that competitors will earnestly strive to *do their best.*

Please select your subjects carefully, and not leave the work to do until the last week. Will you not all try?

PRACTICAL NOTES ON PHOTOGRAPHIC SUBJECTS.

BY G. WHARTON SIMPSON, M.A.

A New Simplified Carbon Process.—One of the most important steps in photographic progress, which has come under my attention for some time, consists in some recent simplifications of the carbon process by Mr. J. R. Johnson, well known amongst photographers as the inventor of the pantascopic camera. Without sacrificing any jot of excellence, but rather, indeed, acquiring new facilities for excellence, Mr. Johnson has rendered carbon printing much more facile and simple than the ordinary process of silver printing, and has, at the same time, got rid of all the troublesome and disagreeable features of existing carbon processes. I have recently had an opportunity of witnessing a private demonstration of the process before a number of amateur photographers and scientific men, and I think a brief description of the practical operations will afford your readers the clearest idea of the simplicity of the process.

I may premise that the process includes a mode of working with double transfer, in which images in their proper position are produced from ordinary negatives, and a mode of working with single transfer, in which the images are reversed, as regards right and left, unless reversed or transferred negatives are employed. Any process of single transfer, requiring reversed negatives, is necessarily of very limited application and small value, inasmuch as it is not only worthless, so far as all existing negatives are concerned, but it renders necessary a special treatment of future negatives, and involves a degree of trouble which the majority of photographers are not disposed to take. Mr. Johnson's process of double transfer is so simple and easy that it renders a process of single transfer almost unnecessary.

The first thing which attracts attention, in relation to the new process, is the compactness and simplicity of the appliances. All the apparatus and material for working on an extensive scale, with 9 x 7 plates, were contained in a box little more than a foot in length, breadth, and depth, and the whole of the operations might be conducted on a small table in an ordinary sitting-room, without disorder or discomfort, and all the manipulations of a dozen 9 x 7 pictures may be completed in an hour. The box in question, which is carefully arranged to hold a complete equipment, was found, when unpacked, to contain two grooved troughs of japanned tin, two or three flat dishes of similar material, a plate-rack, a few plates of opal glass and some of tin or zinc, a bottle of bichromate solution, a bottle of white shellac cement, a thermometer, and a japanned case containing sheets of sensitive tissue which had been duly exposed, and ready for mounting, developing, etc. No large and powerful press was there, to be used in mounting, because it was not needed; no extensive series of troughs or dishes to permit many prints to remain developing without danger of abrading or injuring each other, for a dozen prints could be developed in a plate-box holding a dozen plates.

The ordinary carbon tissue of Mr. Swan is employed. It is rendered sensitive by floating on a five per cent. solution of bichromate of potash; by an ingenious and easy mode of manipulating, the floating operation is rendered very easy, and, by floating instead of immersing, the rapid drying of the tissue is secured, and the risk of spontaneous insolubility removed.

The first operation was to fill the grooved trough or plate-box with water, at a temperature of about 100°, Fahrenheit; a spirit lamp, placed underneath in a cell provided for it, maintained this temperature for any number of hours required. A flat dish was also filled with cold water. A sheet of exposed tissue was immersed in the cold water for a few seconds, face downwards. Its behavior in the water indicates the moment when it must be removed; it first curls inwards, and then again becomes flat; if left a little longer it begins to curl in the opposite direction. It is, before it does this, and just when it has become flat after its first curling, that it is to be removed from the water. In the meantime, a plate of glass—opal glass, for convenience in examining the result, is used—has been rubbed with a thin coating of solution of wax, or, what has been found much better, with a solution of stearine in alcohol. On this prepared surface the tissue just lifted from the water is placed, face down. To make sure that no air-bubbles are imprisoned between the face of the glass and the tissue, it is well to immerse the glass in the water, and bring the two surfaces into contact under water. A flat camel's-hair brush is dipped in the water and passed over the back of the tissue, to press it down gently and secure contact in every part. This plate is then set aside, and another and another treated in the same manner. The tissue, as we have seen, remained in the cold water something less than a minute, insufficient time to permit the gelatine to get thoroughly soaked; in a few minutes after mounting, however, it absorbs all the superfluous water surrounding it from the paper, and between the glass plate and the gelatine surface, and it is found to adhere firmly to the glass without the aid of India-rubber solution or cement of any other kind.

The tissue moistened, as I have described, will adhere with perfect tenacity to any plane surface impermeable to water, quite as readily as to glass. It may be applied in this way to prepared canvas for the oil painter; to wood, metal, stone, etc., for a variety of purposes. If the glass be used without a coating of wax or similar body to prevent perfect adhesion, the image will remain perfectly attached, giving an admirable transparency. In this simple mode of mounting, it will be noted, several important points are gained: the expense of India-rubber solution, and the trouble of applying it to the two surfaces, together with the unpleasant and deleterious vapor, are avoided. The operations are more easily performed, more quickly performed, and no press is required. I may here point out, also, another facility which is gained, which will be highly valued by many. It will be noted that the side of the tissue now in contact with the glass, will, after final transfer, form the surface of the picture. If, then, this glass be polished, the tissue compound or gelatine acquires a surface equally polished, and the picture a surface of precisely the same quality. If, on the other hand, the glass surface have a grain or texture, the finished picture will have a similar texture. Availing himself of this point in practice, Mr. Johnson uses glass plates polished at one side and ground on the other, and so secures a print with a glazed or matt surface at will.

I will, however, proceed with the operations without further comment. The tissue, having been mounted on the glass as described, adheres to it much in the same way in which a boy's toy, a "clever" or "sucker," adheres to a stone. In a few minutes it is ready for development. The plate is then slipped in a groove in the japanned trough of warm water; another and another follows, until the twelve grooves are filled up. By the time this is effected, or before, the first is taken out, and the paper backing of the tissue lifted off, which is done with the most perfect ease, leaving the tissue compound firmly attached to the glass, which is then replaced in its groove to complete development. By the time the whole of a dozen plates have been treated in this way, the development of those first treated is completed, and these, being removed, are rinsed in cold water and placed in the outer box, which is provided with grooves for the purpose, to dry. By the time the last has received this treatment, the first is sufficiently dry for the next operation of transfer to the paper on which it is to remain. To effect this transfer, the plate is again immersed in a dish of cold water, and a piece of gelatinized paper is placed in the water above it, and there brought into contact with the image on the glass. The two are lifted out together, the paper being then brushed down as in the first mounting, to secure perfect contact, and the plate is again set aside for the whole to dry, and in less than an hour the corner of the paper is raised and the whole lifted away, the image leaving the glass without difficulty, presenting a perfectly completed picture.

This, then, is the simplified process by double transfer, to which I fear I have scarcely done justice in describing it, as the description seems prolix compared with the simplicity of the operations, in which no hitch of any kind occurred on the occasion of the first demonstration. The single transfer process is more simple and more efficient than any other similar process which I have seen. I will briefly describe it. The tissue is, of course, sensitized and exposed as before. A piece of fine paper is then immersed in a solution of white shellac or other resin, in liquid ammonia. This is the cement employed. This paper is then placed upon a plate of glass, or a sheet of tin, or similar surface, and pressed down with the flat camel's-hair brush. When this is nearly dry the sheet of exposed tissue, which should be about a quarter of an inch every way less than the mounting paper, is immersed in water, to which a little ammonia has been added, and then placed on the mounting paper which rests in the plate. It is brushed down, dried a little, and developed as above described. It is then rinsed and dried. When dry, a penknife point is run round the edge, and the picture is lifted from the plate quite complete. Nothing can be simpler, nothing more efficient.

Both processes, together with some other improvements, have, I understand, been patented, both here and in America. You will, however, doubtless keep your readers informed of all that concerns them to know on that part of the question.

M. Albert's New Photo-Mechanical Printing Process.—You have had your interest excited by the wonderful accounts of M. Albert's new photo-mechanical printing process, and have probably, by this time, seen some examples of it. I now inclose one. Some of the results I have seen, have far surpassed, in delicacy and in perfection of half-tone, anything I have before seen in photo-lithography, and the claims made for the process are most startling. M. Albert tells me that the printing surface is as easily produced from the negative as a silver print is; that this printing surface will produce a very large number of impressions. One plate, he says, has produced 1300 impressions, the last as good as the first, and that, apparently, it would have produced as many more. That he can work conveniently from card size up to plates 30 x 20 inches, and that, as the impressions are in printer's ink, they must, of course, be permanent. All this is most interesting. I hope it is, in all respects, accurate. In any case, many of the prints are charming. I am now in a position to give some information as to how these wondrous results are produced. The process is really based upon the principle of photo-lithography. As the printing surface consists of gelatine, I propose to call it photo-callography. My information is derived from a friend in Paris, who obtains it from the patent records, which, according to French law are, after a certain period, accessible on paying a fee. M. Albert's process is briefly described in his French specification as follows:

Take a glass three-eighths inch thick, and—

1st. Coat with—

Filtered Water,	300	parts.
Albumen,	150	"
Gelatine,	15	"
Bichromate of Potash,	8	"

2d. Dry in a warm, dark place.

3d. Cover it with a dark piece of cloth, intercepting the light completely on this side.

4th. Expose the glass, on the glass side, to the light for from half an hour to two hours.

5th. Take away the cloth.

6th. Cover this first coating with the following:

Gelatine,	300	parts.
Bichromate,	100	"
Water,	180	"

7th. Dry as before.

8th. Expose under a negative.

9th. Wash the glass for about a quarter of an hour, and dry in the air.

10th. Slightly wet it and work in the ordinary way in a lithographic press with ordinary printing ink.

It is tolerably evident that some slight error has been made in the French patent, in stating the proportions of the second coating solution, as 300 parts of gelatine and 100 parts of bichromate could not possibly be dissolved in 180 parts of water. I suspect that it should be 1800 parts of water.

The great difficulty experienced in working the process of Tessie du Mothay, which is analogous to this, arises from the soft nature of the gelatinous coating, which will not yield more than fifty or sixty impressions without injury. Whether the preliminary coating with gelatine, albumen, and bichromate in M. Albert's process, is the source of durability or not, I cannot state. The singular capacity of a gelatine film to act in a manner similar to a lithographic stone, and to acquire, by different degrees of exposure, varying degrees of absorptive power when sponged with water, is very curious, but not less important and interesting. It may, I think, be probably utilized largely in the photo-mechanical printing processes of the future.

Honeycomb Cracks in Negatives.—I do not remember to have heard whether the United States photographers possess immunity from a serious trouble which sometimes besets some photographers in this country. I refer to the cracking of the negative film. There are two or three distinct kinds of crack; but, one of the most common, is that in which the film first rises into ridges in a honeycomb pattern all over the plate. I have had opportunity, recently, of investigating some cases of this kind of cracking, and have had occasion to confirm a theory I had previously held, namely, that the chief, if not the sole cause of such cracks, is the presence of some trace of hygrometric salt left in the film in the production of the negative, and, of course, before varnishing. The most common cause is, I believe, traces of the hypo used for fixing, left in the film; and, in some cases, the use of water for washing the plate, highly charged with chlorides, carbonates, etc. However perfectly varnished the negative may be, if traces of hygrometric salts remain in the film, they will be apt to absorb moisture in damp weather, and honeycomb ridges and cracks will follow.

Fortunately there is a remedy for this, a very simple form of which has recently been brought under my attention. The remedy, which has been practiced for some years, consists in submitting the negative, in a bell-glass, to the vapor of alcohol, which, having thoroughly permeated and softened the varnished film, caused the ridges to subside and disappear. A friend, who had some negatives recently attacked by the honeycomb disease, tried a simpler remedy. He simply warmed a little alcohol and poured it over the defective film; this softened the varnish and the film generally, and ridges at once sunk down and disappeared sufficiently to give no indication in printing of their presence. It is, of course, important, in such a case, that there should be no actual crack or break in any of the ridges, otherwise, the alcohol passing through and getting under the film, might injure and possibly destroy the negative.

A Simple Method of Obtaining the Effect of Two Tints in Portraits.—Amongst novel effects in portraiture, a very pretty and simple one has recently been brought under my attention by Mr. Holyoake, a photographer in this city. Its especial claim to attention, besides being effective, is that it is so easily and cheaply produced. The effect produced, is that of two tints in the picture, giving an image on a white ground with gray margin, or an image on a gray ground with a white margin. To make the matter more clear, I will describe one, an example of which I forward. It is a vignetted portrait of a lady, on a white oval ground surrounded by a delicate tint of gray, having a slight tendency to green, which gives an effect of purity to the whites and richness to the warm tone of the blacks. This gray tint appears, at first glance, to be printed on the albumenized paper, or to be produced by some method of dying or staining it with a pattern, but it is, in reality, produced by much simpler means. The gray tint is produced by printing on the card, used for mounting, a design in black, or whatever form may be required for the gray tint in the finished picture. In the special card I am describing, a broad black margin is printed with an oval centre left white. The print on albumenized paper, when mounted on this card, is sufficiently transparent to permit the black to be seen through as a gray tint, which gives the effect I have described. Various designs of border can, of course, be produced in this way, suited to different pictures. The effect of a portrait on tinted paper with white high lights, can be readily produced by mounting the print on a piece of black paper upon which the lights are scratched out; or the lights, instead of being scraped out of the mount, may be put at the back of the print in Chinese white, and will appear through the paper delicately softened and very effective. I commend this simple method to the attention of those of your readers who may wish to produce pretty varieties in finish by very simple and ready means. The black, for experiment, may be easily stencilled on the mounts.

A NEW SKY SHADE.

I HAVE been reading with some interest, M. Carey Lea's article "On New Diaphragms," in the February number of the *Photographer*, and, foreseeing certain disadvantages and inconveniences by the use of the diaphragms therein proposed, I submit to your notice a sky-shade, which I have had in use some time, with the exception of a minor arrangement included here, and which I think will be found to embrace all the advantages claimed either for the perforated metal shade of Mr. Lea, or the inclined diaphragm of Mr. Sutton, with the addition of greater adaptability and simplicity in use.

A, is the camera front supporting the lenses *a a*. B is a frame of wood of a suitable size, and extending outward from the camera-front as far as convenient, without obstructing any portion of the view it is desirable to include in the negative. C, C, are grooves in which the shutter, Fig. 2, is kept in place. D, D, D, are sections of rubber tubing, to break the force of the shutter in a rapid descent. E, E, are springs, forced inward in its descent by the projecting top of the shutter, H, and in their relaxation preventing any rebound of the shutter. M′ and M are spring-catches, the lower to hold the shutter up while focussing, the upper for the same purpose when an instantaneous exposure is desired. Fig. 2 is a rear view of the shutter (*i. e.*, of the part towards the camera), made of wood, and as light as is consistent with its duties. H, is a bar of wood firmly attached to the shutter proper, G. O, O, are vertical bars attached to G, moving in the grooves, C, C, acting as guides when the shutter is elevated, and also as supports to an iron rod, I, to which they are connected by a leather hinge at the line, V; the rod, I, is of greater length

Fig 1.

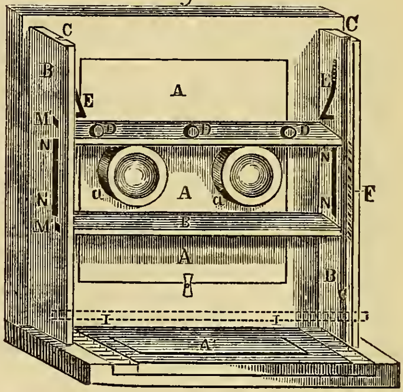
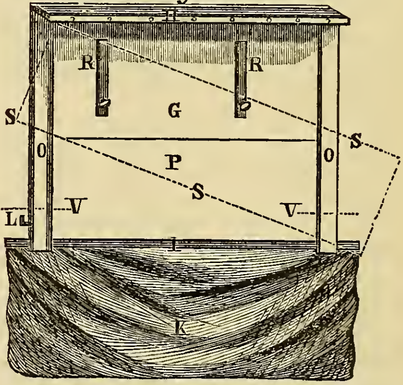


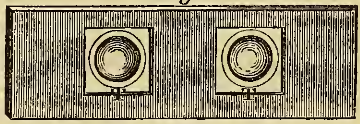
Fig. 2.



than the width of the frame, and works outside, or rather in front of it. K, is a piece of black cloth, which is attached to the iron rod, I, at its upper part, and to the bottom of the frame, B, at its lower part.

The manner of using the apparatus is self-evident. The frame, B, being attached to the camera, the springs, E, E, are compressed when the shutter rises a short distance by the expansion of the rubber springs, D, D; the shutter is now elevated and supported by the spring-catch, M^2, and the focussing is performed (in my camera the frame is about two inches deep, but I have an arrangement to extend it three or four inches further from the front of the camera if necessary; a simple piece of board cut into steps on either side, and the focussing-cloth does duty as a shade for the space left open at the top). This done, the shutter is released from the spring-catch, M^2, and allowed to fall to the sky-line, which is carefully noted by means of the scale, F, Fig. 1, and the pin, L, Fig. 2. It is convenient to divide the scale into one-eighth inches; this will be found near enough for practical purposes. A correspondingly adapted scale may be drawn on the focussing-screen; this, however, will perhaps lead to confusion, as each lens will require a different scale. I content myself by fixing the shutter in place when the sky-line is reached, and then examining the indicating-pin in front. The middle distances are now noted, and the shutter drawn up and fastened by the catch, M^1; when the sky is sufficiently bright, or the lenses sufficiently rapid for an "instantaneous" exposure, the shutter is released, and the time occupied by the exposure is regulated by the size of the opening, P, Fig. 2. If a more lengthened exposure is desired, it is best first to raise the shutter to the height required, and give the necessary exposure to the sky, then lower it and give the middle distances what additional time is requisite, and finally complete the exposure of the foreground; it, of course, being understood that the required exposure of the foreground is longer than that for objects at greater distance; should that not be the case, the shutter can readily be moved or adapted to give middle or distant objects any comparative exposure necessary, by having a false front attached by thumb-screws or other contrivance at R, R; in this event either side may be made to drop lower than the other if required, as indicated by the dotted line, S, Fig. 2. When, however, as is sometimes the case, *one side* of a picture requires a longer exposure to obtain detail than the other, openings, N, N, Fig. 1, can be made in the sides of the frame, and a shutter, Fig. 3, with openings of suitable size, T, T, made therein, and, if accurately made, and the lenses are exact (I have presumably written for stereoscopic work all through), the portion of the image resulting from each lens will be correspondingly shaded by moving the shutter in the required direction.

Fig.3.



It is highly probable this apparatus may not be new to many of your readers, but I do not recollect observing either in your or any other photographic journal, a description of anything, for the purpose intended, I find so convenient or useful. A more elaborate apparatus for the the extension or contraction of the shade can be made upon the principle of the bellows, and worked by a rack and pinion if desired, but, for almost all operators, the present form will be all-sufficient.

It is just possible, a description of my focussing-cloth for field-work, may not be uninteresting to a few of your readers. I prefer, for many reasons, a draw-shutter to my plate-holder that comes entirely out, and, before adopting my present cloth, was frequently troubled with light-struck plates. It is large, of course, covering the camera with about three-feet drop from the bottom all around, and covered with white cotton cloth outside. On one side (the right) I have an attachment like the sleeve to a coat, so fashioned, with an opening at the bottom large enough to insert the hand; the cloth being fastened *under* the camera, I draw out the plate-holder shutter *into* this sleeve or bag, as it may be called, and let it hang down out of the way until the exposure is complete; you will readily see the light has no chance of getting to the plate while the shutter is being withdrawn. The white covering is a great protection, keeping both the head and camera cool.

HELIOS.

SAN FRANCISCO, March, 1869.

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PHOTOGRAPHY FOR BEGINNERS.

BY PROF. JOHN TOWLER, M.D.

III.

DEVELOPMENT OF THE NEGATIVE.

LET me impress upon you the importance of this branch in the production of a negative; above all things, avoid hurry and slovenliness; the developer must be kept perfectly clear and free from particles of decomposed matter of every kind, and the developing vials must, in like manner, be quite clean. During the time that has elapsed since the plate was taken from the sensitizing bath, and finally from the plate-holder, the excess of nitrate of silver has flowed down to the lowest corners and accumulated there, and also on the back of the negative at these corners. Remove this excess with a piece of blotting-paper or a rag kept for the purpose before you pour on the developer.

DEVELOPER.

I still use and recommend the nitro-gelatine developer; the plain developer may be just as good in producing the decomposition required, but it appears to me that it is less under the control of the operator and is more liable to fog the picture. Prepare the following stock-solution of nitro-gelatine:

Nitric Acid (spec. grav., 1.2),	1 ounce.
Water, rain or distilled, .	1 "
Gelatine, white, . . .	3 drachms.

Shake the mixture well, and then set it aside to dissolve. As soon as it is dissolved, it is quite limpid and of a bright canary color; filter it through paper and keep it for future use. The nitric acid is chemically pure, and is of the strength used by analytical chemists generally; you can get it of the stockdealers, but be sure to order it of the prescribed strength and quality.

DEVELOPER FOR PRESENT USE.

Double Sulphate of Iron and Ammonia, ...	6 drachms.
Water, rain or distilled, .	8 ounces.
Nitro-gelatine, . . .	80 minims.
Alcohol, ...	80 "

When the salt is dissolved, filter the solution for use. This developer will keep unchanged for an indefinite time. The color is grayish-green.

If your plates were sensitized first in a strong bath, and afterwards rinsed (if I may say so), in a weak one, you first cover the exposed plate with the developer, by pouring it on dexterously so as to cover the whole film very quickly and continuously, and then allow it to flow back again into the vial; now you add two or three drops of a solution of nitrate of silver, thirty grains strong, to the developer, and then, shaking the mixture well, you pour it again upon the plate. Here let me caution you to be very particular in not allowing the developer to fall from any distance upon the collodion film, otherwise, the force with which it falls will cause the fluid to wash off the silver salt from the part on which it drops, and this part will consequently be almost a transparent speck on the developed plate. To pour the developer right, bring the edge of the vial which contains it, down to the collodion film, and almost in contact with it, and then, tilting the vial, you can easily spread the contents uniformly over the whole surface without doing any damage to the film.

During the time that the operation is being performed, it is quite an advantage to have the light enter from a small square of glass beneath the plate you are developing, that is, I prefer to develop the picture by *transmitted* light, and not by reflected light. In this way you can watch the development with great ease and accuracy. If the dark parts do not become sufficiently dense, you can add again two or three drops of nitrate of silver to some fresh developer, and thus continue the operation until the picture is developed to your satisfaction. Now is the time to form an opinion whether the negative will be a good one or an imperfect one. If the picture is very bright, consisting of shades intensely black, and lights intensely white, a novice would conclude the picture to be excellent, charming, perfect; but you may throw it aside and commence over again, exposing, this time, a number of seconds longer; for, from such a negative you can never obtain a print that will please an artist, and, for a good reason, because it is unnatural; the lights and shades are unnatural; they do not blend gradually into each other as they do in nature; the picture is harsh; the contrasts are altogether too great. On the contrary, we will suppose this above-mentioned horrid contrast does not exist, but that there is a gradual blending of lights and shades, giving rise to what we call middle tones, and that the shades are dense enough to prevent you from reading a page of print beneath them, or from distinguishing the leaves on a tree if you hold the negative between the eye and the tree, then the negative will be a good one. But, just when you have arrived at this point, there comes a difficulty—a difficulty to stop you from continuing the development; you are just at this point liable to *overdo* the development, and to make the shades, as well as the middle tones, much too dense, and thus produce a very feeble picture. You must guard against this; you must learn to control your desire to make very dense negatives, and to stop in time.

Some one, perhaps, may ask how it can be possible to develop so long without fogging the picture. The reply would be, that when the plate is first well washed and *coated with albumen*, then sensitized only a *few minutes*, and the picture is developed with the *nitro-gelatine developer*, fogging is seldom perceived, for fogging is a reduction of the nitrate of silver, instituted on the surface of glass quite easily, but not on a surface of albumen; and the nitro-gelatine solution is a more effectual restrainer of this reduction than plain acetic or nitric acid alone.

Supposing the picture to be dense enough, and that there is middle tone, let the plate be thoroughly washed on both sides, and then fixed either in a solution of hyposulphite of soda or in one of cyanide of potassium.

FIXING SOLUTIONS.

No. 1.

Hyposulphite of Soda, . .	8 ounces.
Rain or Distilled Water, . .	1 quart.

No. 2.

Cyanide of Potassium, . .	1 ounce.
Rain or Distilled Water, . .	1 quart.

The washed plate is immersed in either of these solutions, and left there until all the unaltered bromo-iodide of silver is dissolved from the film. Generally, you will find the collodion film is thicker on one edge and at one corner of the plate, than anywhere else, and consequently it will take a longer time to clear away all the yellow iodide from these parts than from the rest of the plate. To know, therefore, when the plate is sufficiently fixed, leave it in the fixing solution until the last-remaining trace of the yellow iodide disappears from the above-mentioned edge and corner, then withdraw the plate, and wash it carefully and thoroughly, and put away on the plate-rack to dry.

If you prefer developing the picture with the common developer, you can use the one whose formula you will find, page 80 of this year's volume; but in this case the negative will have to be intensified, perhaps, nine times out of ten. I shall recur to the subject of intensification in my next communication.

As soon as the film on the negative is dry, you may proceed to varnish it. I do not think it is advisable to prepare your own varnish, and at present shall not give you any receipt for doing so. Get a pint of negative varnish for present use. Warm the back of the plate at the stove or over the flame of a spirit-lamp gently, and then pour over it a film of the varnish, in the same manner as you coat the plate with collodion, and let the excess of varnish drain off into the bottle from which it was poured. Whilst the varnish is still just dropping from the lowest corner, take a piece of blotting-paper and remove the accumulated ridge of varnish from the lowest edge, and then dry the film at the stove or at the flame of the spirit-lamp, which is allowed to play along the back of the plate, whilst you hold the latter almost perpendicular, and move it from the right to the left, and *vice versâ*, until the varnish has set. If you neglect to remove the excess of varnish from the lowest edge of the plate, or hold the plate horizontal and not vertical or slightly inclined from the vertical position, the varnish will dry unevenly, and form a long ridge about half an inch from the lowest edge, which may be detrimental hereafter when you come to print from the negative.

PHOTOGRAPHIC EXPERIMENTS.

(Read before the Photographic Section of the American Institute, on the evening of February 2d, 1869, by H. J. Newton.)

(Continued from page 107.)

I have succeeded in perfecting a tea process which is reliable, and in most respects, produces results similar to the coffee. I experimented with several samples of Oolong tea, with different results in almost every instance. I then procured some Japanese tea, and the plates resulting from its use were very fine. I have since experimented with different samples, and the results have been uniformly the same. I make a strong tea, using a large tablespoonful, which I put into a bowl and pour on eight or ten ounces of boiling water, then cover it over, and keep it hot for about an hour, then make it up to ten or twelve ounces; add, while hot, fifteen to twenty grains to the ounce of finely pulverized sugar of milk, filter, and as soon as cool, it is ready for use. I exhibited some plates preserved with this process to the members of the Photographic Society at one of our meetings last fall, at which Mr. Rockwood was present. He stated that he had used tea for preserving dry plates, and at times produced very fine results, but he had used Oolong tea, and he often found his plates bad where there had been no change except in the tea. If I recollect right, he stated that he published some of his experiments, but, as far as I was concerned, I had no recollection of ever seeing any published process for using tea for a preservative. I have used, in experimenting, loaf-sugar and also rock-candy in these solutions, but prefer and would recommend sugar of milk. I made a very sensitive plate by adding a grain and a half to the ounce of acetate of morphia to my tea solution; it worked in one-fourth of the time; whether they will keep I am unable to say. I have one, however, which is several months old, that will test that point when used. There was one drawback, however, to its adoption: the same difficulty presented itself that appeared in the tannin, into which I introduced acetate of morphia: the tea soon became turbid and unfit for use, except, perhaps, as an anodyne. Whether the morphia could not be introduced into these other solutions, in the same way adopted with the tannin, with the same or still more beneficial results, I have not yet had an opportunity to demonstrate. Since the publication in the *Philadelphia Photographer*, of Mr. Carey Lea's modified Gordon's gum process, where he claims to have produced dry plates with his bromide of silver collodion, as sensitive as wet ones, I have applied his gum formula to dry plates made in the ordinary way; the only change from Gordon's is the substitution of twelve grains to the ounce of sugar instead of five, with the addition of carbolic acid to preserve it. In my experiments last summer with Gordon's process, I used two drops of the solution of carbolic acid to five ounces of the gum-solution, to prevent its changing. With this new gum formula I have produced very sensitive plates, requiring from thirty to forty-five seconds' exposure with an iron developer; according to my recollection, that was the time I found necessary for the old formula. Those experiments, however, were made in midsummer, which would show increased sensitiveness by the new formula of at least one-third. I have made very beautiful dry plates, about one-quarter more sensitive than the tannin plate, with a strong tea made with white oak bark. I have also used, as a preservative, bisulphate of quinine, peruvian bark, quassia, rhubarb root, sumac leaves, with varying results. It had become quite a common remark, that it was more difficult to find things which would not preserve dry plates than to find things which would. I have experienced no difficulty of that kind.

The effect of Croton water on the sensitive film may be of interest to those New

Yorkers who are trying to make dry plates. There are three months in the year in which it can be used without any injurious results, from the first of January to the first of April, and, if the season is cold and backward, to the first of May. As soon, however, as the weather becomes sufficiently warm to cause the decomposition of vegetable matter to commence, you will, if you observe closely, notice a change in the sensitiveness of your plate, which cannot be attributed altogether to the change in the season, and this goes gradually on until something appears which will strongly remind you of fogging, and yet you will be hardly able to define it as such, the sensitiveness still increasing as this tendency to fog increases. This went on with my experiments last summer, until the middle of June, when the fog became decided, and, before the first of July, it had become a dirty veil. The negatives produced before the middle of June were good printing negatives, notwithstanding the tendency to fog. After this time until cold weather has prevented decomposition, and the old stock of water on hand has run off, and been replaced by that which contains comparatively no organic matter, Croton water is worthless for washing dry plates, for the first or second washing at least, from May to January.

I mentioned to Mr. H. T. Anthony the facts here stated, knowing that he had had much experience with dry plates. He stated that his experience had been similar, and that he attributed the effect observed to animal matter more than to vegetable. He stated that, in the month of June the Croton water became saturated with fish-spawn to such a degree that it clogged the sieves in some places, so that it became necessary to remove it once in twenty-four hours. It would appear from this, that a certain quantity of animal or organic matter in the water will give increased sensitiveness to the film, and it becomes a delicate question to determine just the kind and quantity to a given amount of pure water, to arrive at the extreme point of sensitiveness without fogging. All who have ever produced dry plates, agree that one of the most important parts of the process is the washings, and that the employment of pure water for the first washing is absolutely necessary. I obtain the water which I use, by melting ice; it can always be depended upon, whereas, distilled water usually obtained at the druggists, frequently contains impurities which render it unfit for washing a sensitized collodion film.

I have experimented much with different developers, and have been thoroughly converted to the doctrine of those advocating strong developers. I have always found that a developer, at least twice as strong as usually recommended, used with not more than one-half the nitrate of silver commonly used, produces much finer results, beside lessening the time of exposure one-half. Negatives developed with a strong developer and the smallest trace of silver, are always soft and full of detail. For a stereoscopic negative, two drops of a ten-grain solution of nitrate of silver is sufficient.

I have succeeded in compounding an iron developer which works well, and the exposure of the plate is reduced about to the same time required when the alkaline developer is used, and the results are as good in every respect; it has the advantage of being much more simple. It is prepared as follows:

Gelatine, ...	20 grains.
Double Sulphate of Iron and Ammonia, ...	80 "
Sulphate of Iron, . . .	80 "

Soak the gelatine in cold water fifteen minutes, then put the above together in a bowl with the gelatine, and pour on boiling water, ten ounces. When the gelatine and iron have dissolved, add ten drops of concentrated ammonia and shake thoroughly, then add sufficient glacial acetic acid to dissolve the precipitate, which will be about one drachm, then add twenty grains of tartaric acid. This developer works the best after it is two weeks old. For a plain pyro acid developer, use eight or ten grains to the ounce of water, and four or five grains to the ounce of citric acid. I have, however, used a developer made as follows, which is very energetic, and produces beautiful, wine-colored negatives with very short exposure:

Hot Water,	5 ounces.
Gallic Acid,	30 grains.
Pyrogallic Acid,	30 "
Citric Acid,	30 "
Glacial Acetic Acid,	30 drops.
Saturated Solution of Acetate of Lead,	10 "

The glacial acetic acid dissolves the precipitate formed by the addition of the acetate of lead.* Unless hot water is used, the gallic acid will dissolve very slow, as that amount is a saturated solution in cold water.

Enlargement of Small Landscape Negatives by the Solar Camera.†

BY JOHN C. BROWNE.

It has long been the desire of amateur photographers to make small landscape negatives in the field, and, after having returned from the expedition, to have solar enlargements made upon paper of various sizes, obviating the necessity of carrying large cameras and bulky apparatus when travelling for pleasure. Formerly, it was impossible to depend upon such an arrangement, as the prints were very deficient in sharpness, but, recently, improvements have been made in solar cameras and photographic lenses, which give a result but little inferior to contact printing.

It is of the greatest importance that the negatives for enlargement should be *first-class*, of medium intensity, perfect sharpness, and fine detail. It must also be remembered that slight defects, such as would scarcely be noticed in contact printing, are much increased by an enlargement of ten or twenty times the original size.

That there is a prejudice against solar enlargements, cannot be denied, but much of the complaint at the present time has originated by photographers furnishing negatives for enlargement entirely unsuitable for the purpose, not giving a good contact picture in a printing-frame. No apparatus can ever be made to give satisfactory results from such negatives.

Although not desiring to enter into a discussion, as to which is the best form of solar camera, it is but justice to say, that the views exhibited this evening were made from half-size negatives with a Shive instrument, by Mr. Albert Moore, of Philadelphia, who excels in that department of photography. Nineteen of these cameras are in constant use at his establishment, some of them of mammoth size, making a print 34 x 44 inches.

Great care and attention is required to make good solar work. The focus must be exact, and, during exposure the position of the box altered every minute, so that the sun's rays, passing through the condensing lens, strike exactly in the centre of the focussing-lens. This is easily arranged by having two openings, through which the sunlight passes, cut upon the outside edge of the box, about twelve inches apart, and parallel with the focussing-lens. By watching the spot of sunlight on a projection of the box, the apparatus is kept in the right position. Should it be allowed to remain stationary for several minutes, the focus of the condensing lens (altered by the position of the sun), will strike at an angle, causing a blurred image; there is also danger of fire. Intense negatives are often broken by the heat of the sun, as a long exposure is required. Good negatives should take about forty minutes to make a print.

EXAMINATION OF OLD AND NEW PROCESSES.

BY PROF. JOHN TOWLER, M.D.

"WEIGH THEM IN THE BALANCE."

I.

We intend submitting almost every process that appears in the journals, to the severe test of experiment, and then to condemn, or recommend, just as the balance indicates.

The first process that claims our special attention, is that discovered by our friend G. Wharton Simpson, M.A., editor of the *Pho-*

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* The addition of acetate of lead to a gallic acid developer to increase its developing power, should be credited to Mr. Carey Lea.

† Read before the Photographic Society of Philadelphia, April 7, 1869.

tographic News, and relating to the use of permanganate of potassa. This beautiful salt in solution, is recommended as an expeditious and reliable intensifier. Take, for instance, ten grains of the salt, and dissolve it in an ounce of water, or prepare a bath, in the same ratio, into which the unfinished, but washed, negative can be dipped, just in the same manner as you would the collodion plate into the silver bath. The negative may be fixed, or not, according to circumstances. Very soon the picture gradually changes color, when immersed in this bath, becoming yellowish, and finally an orange-brown. It is supposed that the salt becomes deoxidized, and its oxygen is imparted to the silver in the picture, and also that an oxide of manganese is deposited upon the prints. Be this as it may, for practical purposes we have to deal with results, and not with theories; enough, the plate is intensified, easily, effectually, apparently without any granulations, and of a non-actinic color. There is, however, a drawback in the original process, and one that would deter the photographer from its use; in fact, I saw one of our fraternity throw down the negative in a passion, after he had intensified it to perfection, and was immediately before in ecstasy. The drawback is this : the deposit, the coloring matter, or whatever else it may be that forms the intensity, is soluble in the alcoholic varnish, which sometimes leaves the picture utterly useless.

But this drawback is easily remedied, and then the intensifier is just all that can be desired.

Immediately after the proper intensity has been attained, the plate is carefully washed, and then finally coated, whilst wet, with the following solution:

Gum Arabic (picked), . .	10 grs.
Rain Water, ...	1 oz.

The plate is then dried before the fire, or near a flame, and then the regular coat of varnish is applied in the usual way. The intensified film is not at all changed after the gum has been applied, and for a very good reason, gum arabic being insoluble in alcohol.

Permanganate of potash, therefore, applied as directed, is one of our best intensifiers, and is worthy of recommendation. The selfsame salt has been recommended also as a corrector of the silver bath, from the property which it possesses of removing or combining with organic matter. I have not much faith in this suggestion, but I will put it to the test, and not condemn without trial.

HINTS ON PORTRAIT LENSES, AND HOW TO USE THEM.*

BY J. H. DALLMEYER.

Success in portraiture will always depend, in a great measure at least, upon the right choice and the proper use of the lens.

I propose here to give, in the space allotted to me, a few hints on these two points, in the hope that they may prove of some service to the beginner.

Portrait lenses are more or less rapid in action, as their diameters are larger or smaller, or as their focal lengths are shorter or longer.†

The focal length of a lens regulates the *size* of the pictures, and the diameter expresses its *speed* or rapidity of action.

Having fixed upon some size of picture to be taken, the next point to be determined is the most suitable focal length of lens.

This, however, involves the prior determination of the distance at which to place the subject; for, as every photographer knows, by bringing the lens nearer to the subject the image increases in dimensions, and *vice versâ*. What, then, is the proper distance at which to place the subject from the lens? In answer to this query, it may be safely asserted that it should not be less than (say) twelve feet, nor, perhaps, more than twenty-five feet; for, if less, the resulting picture will generally be defective as regards definition and perspective, because the lens producing it will be of too short a focus, or made to include a larger angle than it properly covers; and if more, the picture will probably be deficient in boldness or rotundity. This is chiefly on account of our atmosphere being seldom perfectly clear and transparent* (more especially in the larger towns), in which case any intervening fog will make itself proportionately more obvious as the distance between lens and subject becomes greater.

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* This excellent paper contains so much valuable information, that we give it space.—Ed. P.P.

† The diameter of a lens here always denotes its actual working apertures, and the focal length, the "equivalent" focal length, *i. e.*, that which produces the same size of images on the ground-glass as does a very thin, single lens or spectacle eye, the solar focus of which has been accurately measured. Directions for finding the equivalent focus of compound lenses have appeared in former issues of the *Year-Book*.

A medium distance of from eighteen to twenty feet is, perhaps, the best that can be chosen. The card portraits being mostly taken with lenses of focal length requiring this distance, owe, no doubt, some of their popularity to this circumstance, for the lenses being of proportionally longer focus than those used for the former quarter-plate pictures, they produce results at once more perfect as regards definition and perspective, and hence, they are in favor with the public.

For a distance, then, of about eighteen to twenty feet between the lens and subject, the *equivalent* focal length of the lens, for a given sized plate, should be about double that of its largest side; that is, for 4¼ x 3¼ plates (or card size), the focus should be from eight to nine inches; for a 6 x 5 plate (cabinet size) twelve inches; for 10 x 8 plates, twenty inches; and so on.

In confirmation of this, I may mention that M. Salomon's charming 10 x 8 portraits are taken with a twenty-inch focal length lens.

Having thus determined the focal length of the lens for a given sized plate, the next point requiring consideration is its diameter or rapidity of action. In regard to this subject, of course every photographer wishes not only to possess a quick-acting lens, but that it should also have a flat field, and give great depth of focus or definition, forgetting all the while that these qualities are diametrically opposed to each other, for he who will have greater rapidity must, to use a familiar phrase, "pay for it" in flatness of field and depth of definition. Thus, of two lenses, both perfectly corrected for spherical aberration, and of the same focus, the one of two inches diameter will have double the "depth" of another of four inches diameter; whilst the latter, in turn, is four times quicker in action.

Or, again, of two lenses of the same rapidity, *i. e.*, having the same ratio of aperture to focal length, the one of double the focal length of the other will have but one-quarter its "depth;" as, for example, a card lens of, say, nine inches equivalent focus and two and three quarter inches aperture, producing a card at twenty feet distance, will sufficiently define accessories, etc., eighteen inches in front and eighteen inches behind the figure or object focussed upon, or have a depth of focus of, say, three feet; whereas, a lens of double the above dimensions, *i. e.*, of eighteen inches by five aperture, and worked at the same distance, will only have a depth of nine inches, or four and a half inches before and behind the point focussed upon.

This sufficiently shows that really quick-acting lenses are only satisfactory when used for the smaller dimensions of plates (say up to the half-plate size). For larger pictures, slower-working lenses, capable of adjustment for diffusion of focus, are the only means of securing the requisite amount of depth of focus.

Thus much respecting the right choice of the lens. Next, a few words on the proper use of it.

The lens should be attached to a camera, and placed upon a firm stand, taking care that the cap fits loosely; so that, in the removal of it there is no tremor or shake communicated to the camera. Cap the lens, and then carefully examine the interior of the camera, to insure its being a perfectly dark chamber.

Next, place at a convenient distance some clear print (as a newspaper), and carefully focus with a magnifier the image on the screen. This done, remove the same, and replace it by the collodion slide; and, instead of the prepared plate, put into this a piece of ground or grayed glass, ascertained to be perfectly flat. Now observe whether the image appears as sharp as it was previously on the screen, and, if so, the camera is correct, or, what is technically called "in register;" if not, the position of the ground-glass requires to be altered in position until it is so.

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* Not so with us, however.—Ed. P. P.

The common practice of measuring, by means of a rule, the distance between the camera front and screen, and then between the prepared plate in the slide, is not sufficiently accurate for short-focus or quick-acting lenses.

Care should also be used in the selection of glass plates; for it will be found that, even among the patent plate, but a very small percentage is *really* flat, especially amongst the larger sizes. Another possible source of error is a too powerful spring on the shutter of the dark slide, causing the plate to be bent in the centre; and, unfortunately, this bending is just in the opposite direction to that required to suit the curvature of field, as produced by the lens. Thick glass plates are, of course, less liable to be bent than thin ones. To avoid all sources of error, however, the best plan is to remove the *one* strong spring from the *centre* of the shutter, and to substitute it by *two* weaker ones made to press equally upon the *sides* of the plate. Lenses are often blamed for want of coincidence of foci, when the camera or the plates, etc., are really at fault; but attention to the above directions will at once satisfactorily determine this point.

As regards the best position of the camera, it has already been stated that no lens has a perfectly flat field; hence, for a standing figure requiring a flat field, it is of the utmost importance that the camera should be so positioned as to favor the lens. This, for card portraits (equivalent focus of lens about nine inches, back focus six inches, and distance of subject eighteen feet, the camera without a swing-back), is as follows: height of centre of lens from the floor, about four feet ten inches; rising front of camera to be elevated, one-quarter inch; and then the image made to occupy the centre of the plate, *i. e.*, equidistant between the top and bottom of the screen. To effect this, the camera will require to be tilted forward slightly, which insures a more natural view of the face than when placing the camera lower and level, in which case the view of the face obtained is, as it were, that of looking *up* into it. Having got the image in the centre of the plate, focus for the eye, and then for the chest, or some prominent object on the chest, as a watch-chain. Now halve, as it were, the focus between this and the eye, when it will be found that the resulting picture will be evenly defined throughout its entire length.

The above is the actual *modus operandi* of one of our ablest portraitists, to whom I am indebted for the particulars.

For the cabinet portrait, standing figure, using a twelve-inch equivalent focus lens (eight-inch back), precisely the same conditions obtain; hence, the camera should be placed in the same position.

A sitting figure requires the camera to be placed at a proportionally lower elevation, and here a swing-back is of great advantage. Indeed, portraits beyond the half-plate size should never be attempted without this adjunct to the camera; for, as has been shown already, larger or longer focus lenses are much more sensitive to difference of distances; and in a sitting figure the feet are often as much as twenty-four inches or more in advance of the face. This occasions nearly a quarter of an inch of difference of focus for a twenty-inch focus lens, and, therefore, without a swing-back, allowing the top of the screen or slide to be pushed out that distance, definition of the legs and feet simultaneously with the head cannot be secured.

In arranging the accessories to a portrait, or in disposing the positions of a group of persons, care should be taken that the objects or persons occupying the sides of the pictures are brought somewhat nearer to the lens than those in the centre; for, the field of every lens being curved, by placing the objects in a corresponding curve, the field of the lens becomes flat, *i. e.*, the sides and centre of the picture will be equally well defined. Since the curvature of field varies in different forms of lenses, definite rules for placing the objects composing the picture cannot be given; but one or two experiments readily determine the point in question.

One other subject before I conclude; it is this:

Photographers accustomed to work with short-focus lenses, *i. e.*, at short distances from the subject—often complain of lack of brilliancy and roundness in their pictures when taking to the use of longer focus lenses, or working at greater distances from the subject.

Now, in most instances, this is simply a question, not of lens, but of lighting, for a little consideration will render it obvious that the direction and amount of light suitable for a subject at twelve feet distance requires considerable modification for one at twenty feet.—*Year-Book of Photography.*

OVER-DEVELOPED NEGATIVES.

BY M. CAREY LEA.

Almost the very last thing that a photographer learns, is the exact point at which to stop development. It is easy to give a criterion to fix the point, the difficulty lies in acting up to it. To get the most perfect combination of brilliancy and softness, one should develop just as long as transparency remains in those denser portions of the image, which are to constitute the high lights, so that the very central spot, as it were, of the highest light, shall print white. But then this must be a mere point, smaller than a pin's head. Just so soon as this point widens out a little, we get that repulsive chalkiness that leads the careful photographer to consider the negative as worthless.

The difficulty in hitting the right point lies, not merely in the needful experience of what the negative should be, but in judging it under difficulties. The light in the operating-room is often insufficient, but even if abundant, its color is unfavorable, and the negative itself is to some extent blocked up by the undissolved iodide and bromide. Besides, the fixing-bath varies in strength, and acts differently upon different films, so that at times more, and at others less, reduction of strength occurs in the fixing.

Experience and close observation remove these difficulties to a large extent, but not altogether, so that, after a succession of good results, there will be, from time to time, a negative got in which too much attempt at brilliancy has been made, and which, when viewed after fixing and by ordinary light, gives evidence of something like blockiness in the high lights. In work done at home, it will generally be best to try again. But even then, the discovery may come too late, and, in views exposed at a distance, we have not this remedy, and in either case, must see what can be done with the negative.

I take it that a careful photographer, when such mistakes do occur, will find them out before he varnishes the negative. Not, perhaps, in trying new methods, or in working new sorts of dry plates, in which often the actinic transparency and opacity are very deceptive, but, in any regular work habitually pursued, the exercised eye will always detect this defect before varnishing. If not, then very troublesome operations of darkening parts of the back may need to be tried. Varnish, colored yellow with alcohol, solution of annotto, of dragon's blood, or of gamboge, may be tried, perhaps, with advantage, though the writer has never had much satisfaction out of this sort of operation.

But, in the much more common cases, where the trouble and its extent are perfectly perceived and measured, as soon as the negative is carefully examined by ordinary light, much may be done to help it. I shall glance rapidly at some of the methods that have been used, before speaking of that which has seemed to me to work best.

Cyanide of Potassium has been long used for this purpose. It is certainly not a bad agent, except for its poisonous properties, which alone should cause its rejection. But it eats away the half tone too much, and whilst the negative is benefited in some respects, it is seriously injured in others.

Acid Pernitrate of Mercury will actively dissolve the image, and has been used for reducing negatives. It acts powerfully, and should be applied very carefully. All mercurial solutions are objectionable to this, that they seem to render the film tender.

Iodizing the film has been used by some. When a negative is placed in a weak solution of iodine and water, or in dilute "Lugol's solution" (iodine dissolved in iodide of potassium), it darkens a good deal and then lightens again. In this condition it is much more transparent than before. The reduction can be increased by dipping into weak cyanide or hyposulphite. But even without this last, the reduction in strength is apt to be too great, and the brilliancy of the negative is gone.

Perchloride of Iron, recommended first, I believe, by Mr. Hughes, is to my mind the most satisfactory agent for this purpose. I do not mean to speak too positively, for I have not often had to use these means, but the experience which I have had has been altogether favorable. The advantage has seemed to be, that a transparency was put into the densest portions before the half-tone was seriously injured, so that by stopping in good time, the negative was got into a really useful condition.

This substance can be had from any druggist, under the name of "muriated tincture of iron," in the form of a buff-colored solution, which before using should be largely diluted with water, perhaps ten-fold. The nicest way to apply it is as a bath. The negative should be well wetted, and then plunged into the bath. Frequent examination is necessary, in order to enable the operator to stop at the exact point, and without overdoing his work. When this point is reached, the film must be well washed off, dried, and varnished, and the solution (filtered if necessary) will answer again and again.

The method is a really serviceable one, and I think that any one who tries it carefully once, will be disposed to resort to it again should occasion occur. As a matter of precaution, the first trial is best made with a negative of no very great value.

THE AMERICAN OPTICAL COMPANY.

Very few persons, when they look at a beautiful photograph, think of the care and skill required to produce it. So photographers, when they succeed in making fine work, little think what enables them to do so.

While we are wrangling over a resurrected process that has just been patented, or watching process swindlers, or commenting upon and discussing the latest novelty, there are institutions in this country, pertaining to our art, which move along quietly in comparative obscurity, but whose influence tells so mightily, that, like that of the great engine which moves the freighted train, if stopped, they would affect the whole business.

High among these institutions, on which much of the fine photography of the country depends, is "*The American Optical Company*," of New York.

Although all of our own apparatus has been made by that company for years, yet not, until a recent visit was made there, had we any idea of the extent of their factory.

We had pictured to ourselves, when thinking upon the subject at all, some obscure loft, with sufficient bench room for four or five men, and floor-room enough for the necessary lumber and tools.

Not so, however. The American Optical Company occupies, as a factory, a room about 50 x 120 feet, with all the necessary machinery, drying-pipes, etc., etc., in quantity large enough, and men enough employed to supply the majority of the photographers of the United States with first-class apparatus.

And it is more of the apparatus it manufactures that we desire to speak, than of the factory, extensive as it is.

The apparatus made at this factory is *first-class*. A first and second quality are made, in order to please all photographic pocket-books, but of the *best* grade we desire more particularly to speak now. *It* is unsurpassed. A photographer who buys one of the first-class boxes made by this company, after using some old light-filterer and dirt-collector, feels, on using it, like a renewed man. It is unwrapped, the parts put together, the whole carefully dusted, placed upon the camera-stand, the holder furnished with a plate, the exposure made, and we are *sure* that the first trial will be a success, so far as the box is concerned. Each part works smoothly, and regularly, and elegantly.

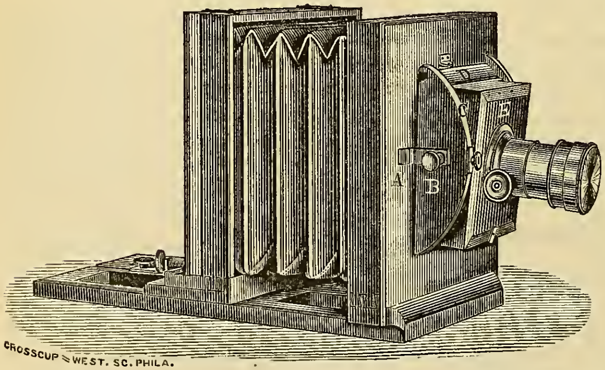
What a desirable thing this is, and, when one has once experienced the pleasure and satisfaction of using such a box, he will not go back to a worse one readily.

All the elegancy and perfection of these boxes is secured by great care in their manufacture. A careful foreman selects the very best seasoned timber, paying the highest rates to have his choice. He wants to make then, we shall say, a dozen whole-plate boxes. All the different parts are got out, and, before being put together, are laid upon steam-pipes for several days and thoroughly dried. The wood parts are then put together, and piled up, and again dried by heated air. The bellows are then put in place, the metal portions fitted, the holders and ground-glass carefully placed, and then all handed over to be finished by the French polisher. The greatest care in every detail is necessary, in order that all the parts may fit, and the finished box *work perfectly.*

A set of workmen is devoted to each particular branch, so that a box must pass through many pairs of hands before it is finished. When finished, it will stand the test of all climates, and please the one who is fortunate enough to own it.

One of the most perfect and universally useful boxes made by this company is the one with the double-circular front (described by our New York correspondent lately), in place of the swing-front.

Fig. 1.

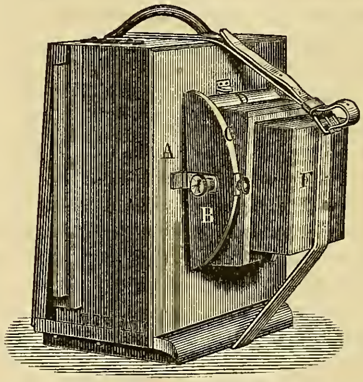


CROSSCUP & WEST. SC. PHILA.

The construction of this box will be made plain by the drawing above, which represents it, furnished with a portrait tube, as if in use. A is the front proper of the box. E is the sub-front, to which the lens tube is attached. A side-way motion from right to left, and, *vice versâ*, is given to the tube by loosening the fastening at B, and moving the front with the hand. It may be fastened at any angle by tightening B. To accommodate this movement, there is a short bellows between the front proper and the sub-front. The up and down motion is given by loosening the screw at C, and moving the sub-front, E, over the semi-circular front, D.

The advantages of these movements will be apparent to every intelligent photographer who has often had to resort to tilting his camera—thus distorting the figure—to suit the field of his lens.

Fig. 2.



This box is made with a folding platform, in order that it may be compactly put together for carriage, in case a trip for view taking is contemplated. Fig. 2 represents the same box strapped together for carriage. When used for view lenses, such as the Globe, Ratio, etc., it is supplied with a box-front, F, with a flap-shutter instead of the flat front, E (Fig. 1). The lens is put inside of F, and the exposure made and closed by the flap.

The whole box is elegantly got up, light and strong, perfect in all its parts, and it is a pleasure and a joy to work with it. It is a fine specimen of the excellent work of that indispensable institution, *The American Optical Company*, whose entire works were purchased some time back, and are now owned by the Scovill Manufacturing Company, New York. Camera stands, pressure-frames; wet and dry-plate boxes; picture stands—everything in the apparatus line is made by this busy, driving, thriving company, and all bright, thrifty dealers keep a stock of the goods on their shelves.

Each box is stamped with the stamp of the American Optical Company, as a guarantee of quality.

DO NOT BE DEFRAUDED.

The country seems to be *flooded* at present with sellers of useless and impractical processes, and with dishonest persons who collect wastes from photographers to refine, and who never make any returns. In our experience as a journalist, we have never had so many complaints of such parties as we have of late from our subscribers. Although we have cautioned our readers, time and again, to have nothing to do with such irresponsible parties, yet some of them will not listen to our protestations, and, when too late, find they have been deceived and defrauded.

The worst subject of the latter class, we have heard of, is the German, Dempt, against whom we cautioned our readers in our last issue. We have letters from several quarters from those who have been swindled by him, and have been visited in person by one of his victims, who is ready to appear against him, should any of our readers be able to detect him and have him arrested.

To help in accomplishing this end, we publish, on the first page of *Specialties*, a photograph of this daring and accomplished swindler, copied from a ferrotype which he had taken (unfortunately for him, we hope), within a few miles of this city, while practising his unholy traffic in the neighborhood. As he may change his whiskers, a description of his person may not be out of place. His real name is J. H. Dempt, though, when in our neighborhood, he sailed under the *nomme de plume* of "John Henry Walter." He was employed in Richmond, Virginia, some nine years ago, and while (about two months ago), committing his depredations there, did it under his real name. Mr. D. H. Anderson, being one of his victims, is now ready to pay reasonably for his apprehension and arrest. He is thickset, five feet eight inches in height, and about thirty years of age. Look out for him, and caution your neighbors to do the same. We are indebted to Mr. L. D. Johnson, Vineland, New Jersey, for the ferrotype which we have copied.

Dempt, alias Walter, finding Mr. Johnson had no wastes to refine, made arrangements to refine, at Mr. Johnson's rooms, such wastes as he might collect around the country. Mr. Johnson assented, and, being a subscriber to our Journal, and seeing our caution last month, inveigled Dempt into having a picture taken for the very purpose we are now using it. We hope it will cause the arrest of the defrauder, and be a warning to others who are tempted to follow his example.

Moral, do not give your wastes to parties you know nothing about.

There are now several other parties going about, whom we desire to caution our readers against. What there is about our *blessed* art that attracts such scamps, we cannot say. The first is a party calling himself Thomas M. Evans, hailing from Baltimore, whose chief article of merchandise is "a process for making imitation porcelain pictures." He tells his victims that he has seen us personally, has shown us his process, and that we have agreed with him not to publish it for one year, to allow him to get repaid for his invention.

We need not assure our readers that this is a villainous fabrication intended to deceive those who may take our Journal, and, therefore, are (or they *ought* to be), proof against such applicants.

We are enabled to give his process, however, through the kindness of one of his victims. It consists in mounting albumen prints on porcelain glass, and is done as follows:

First make the print transparent by immersing it in a solution of—

Gum Mastic,	½ ounce.
Turpentine,	4 ounces.

Dissolve in a hot-water bath. Now take the porcelain plate, heat it, and apply the following mixture to its surface:

Balsam of Fir,	½ ounce.
White Wax,	1 "
Turpentine,	20 drops.

Dissolve as above. Press the print to the plate while warm, and the picture will be completed.

As we understand it, there are two parties selling this process.

Still another is selling a process for making ferrotypes to look like porcelain pictures, and, as we learn from one of his victims, he manipulated as follows:

"He took a glass and smoked the centre of it with a lamp, and then exposed a ferrotype plate in the camera. Then, in the developing-room, he laid this smoked glass on, or nearly on the collodionized side of the plate, and then exposed it to diffused light, then developed, and fixed with cyanide as usual. Then he went into the developing-room, and, in a few moments, he had a very good imitation of a porcelain. I concluded to give him a very small sum, when he told me that he took—

Bichloride of Mercury,	½ ounce.
Water,	4 ounces.
Saturated Solution of Protosulphate of Iron,	1 ounce.
Acetic Acid,	30 drops.

"Mix, and let stand a few hours.

"Make this solution warm, and, after the ferrotype is finished as far as fixed, wash it, then use this solution on it until it gets to be a good imitation. This looks well while wet, but loses a great deal on drying, and turns to an ugly blue when *varnished.*"

Why sensible readers of our Journal should become victims of the machinations of such fellows, we cannot see. We are always glad to inform them upon such subjects, and they would do far better by appropriating their money for useful books or the improvement of their business.

We have been told that some of these parties have represented themselves as our agents, and have even solicited subscriptions for us. We desire to say, emphatically, none such are our agents. Reputable stock and newsdealers are our only agents, though we are always glad to have our *subscribers* solicit subscriptions for us. We have nothing, however, to do with process sellers.

Those who have new, and valuable, and useful patented processess, will not consider us as defaming them in the least. We have no desire to do so.

We refer only to the disreputable characters who go about peddling old, and obsolete, and valueless recipes for anything they can steal in return from their dupes.

Such we shall always deem it our duty to expose, and will thank our readers to keep us informed concerning all such whom they chance to meet.

A NEW CARBON PROCESS.

A GREAT deal of interest has been excited in England by a new patent taken out by Mr. J. R. Johnson for a new carbon process, which is considered to be so great a simplification of Swan's method that many consider it likely to supersede all other methods, silver printing included. This new process is principally taken from one that I published in this Journal some time since, as will presently appear.

Mr. Johnson takes carbon tissue as ordinarily prepared, sensitizes it, exposes it, then moistens it moderately, presses it on glass, and develops. In this condition it gives a glass transparency. By rubbing the glass with a solution of stearine before applying the tissue, it becomes possible to transfer the print, after development, to paper.

Great stress is laid, in the published description, upon the discovery by Mr. Johnson, that by moderately moistening the tissue it will adhere to glass by simple pressure, and without the use of a press. Now this fact was published by me, and not only is this idea taken from my method, *but the exact method of managing it.* I wrote that, finding it difficult to avoid introducing air-bubbles when the moist tissue was laid on the glass, I had perfectly obviated this trouble by introducing the glass into the liquid, slipping it under the tissue, and raising both together. In this way air-bubbles were easily and completely got rid of.

These two main points, therefore, the fact that tissue would adhere to glass and admit of development without the use of a press, and the method of getting the tissue upon the glass satisfactorily, Mr. Johnson has taken from me. The solitary difference in his method is, that the tissue is exposed first; whereas, in mine it is attached first and exposed (by reflected sunlight), through the glass. Nor is this plan of exposing before attaching to a support new, for it is an incident to Swan's process. Mr. Johnson's method is, therefore, simply a combination of parts of my method and part of Mr. Swan's. There are one or two new manipulations in respect of the transfer paper, but these are incidental, not essential. It seems to me doubtful, therefore, if any patent can stand for this new method. My method will be found in this Journal for April 1, 1868.

M. Carey Lea.

PHOTOGRAPHY IN GERMANY.

American Pictures—New German Pictures—Albert's Process—Retouching Negatives—Grasshoff's Carbon Prints—Ost's Collodio-Chloride of Silver and its Application for Reproducing Negatives—The White Line Around Dark Backgrounds.

Long-continued sickness, the consequence of my voyage to Egypt, has prevented me from fulfilling my duties as your correspondent. While I have been compelled to be inactive, there has developed itself an active life in photography, and it is not uninteresting to watch its progressive strides.

The collection of American photographs you sent me, are of especial interest to me. I have only partially examined the large collection, and notice that Adam Salomon's method has taken root in your country, and that Mr. Notman has produced results which are worthy of his example. It is curious that, with us, nobody has tried to imitate Salomon's style. The general public says the pictures are too dark. Of the other pictures I have, so far, only laid before our society the pictures of Kurtz, in New York, which indicate much tact and fine artistic feeling. The original cabinets of Messrs. Bradley & Rulofson, San Francisco (perhaps the first that ever came to Berlin from the shores of the gold country), the excellent pictures of Allen in Boston, Bardwell in Detroit, and Kilburn Brothers in Littleton.

The ferrotype cabinets of Howe were entirely new to us. Ferrotypes are hardly ever made here. Reserving further remarks about these pictures for a future time, and thanking, at the same time, Mr. Gaffield, of Boston, for some splendid leaf-prints, I proceed to give you an account of what has transpired here since my last letter.

One of our best photographers, Mr. Milster, once made the remark, that it was not only the photographer's duty to make pictures, but also to sell them, and that the former was of no use without the latter. There are people who understand the latter to perfection, but who are perfectly ignorant of the former. It is further an indisputable fact that, under circumstances, prints which suit the momentary whim of the public will find readier and larger sales, than those that comply with every requirement of true art.

And so it must happen that the photographer, who, like the artist, has to work for his daily bread, will try everything to please the public taste, and his efforts are crowned with success so long as the fancy of the public sustains him.

Three years ago children's pictures were in fashion here. You have many of the charming still-life pictures of Loescher & Petsch, children of both sexes playing at ball, teasing each other, bathing, sleeping, or at their toilet, etc., etc. These pictures were made by the thousands. They were very handsome, and it seemed as if the public appetite would never become sated. Soon, however, imitators appeared, who understood how to *sell*, but not to *make*. The prices were reduced, the pictures became common, and in two years the business was killed. Loescher & Petsch have lately sold their plates to a wholesale dealer in these articles, whose agents peddle the pictures about the country. Shortly after the children's pictures, representations of flowers made their appearance; roses and forget-me-nots, camelias and acacias, colored to nature, filled the shop-windows. One might have supposed that these, as auxiliaries to school instructions, would have maintained their place, but far from it, the public soon grew tired of them, and they and their predecessors disappeared.

At present handsome girls are in vogue. You will, perhaps, say that they have always been in vogue, and, really, a pretty little face, in the modern style, seems greatly more attractive in the show-case of the photographer than the so-called "studies" of the painter, representing, generally, the wrinkled features of an old man.

Now, however, the show-case picture has become an article of trade, which is manufactured by the thousands. A photographer here has published a collection under the title of "Berlin's Celebrated and Famous Ladies;" and you will find in the same album princesses of the court, princesses of the theatre, and princesses of the demi monde in sweet harmony, side by side.

Formerly, the business of dealing in handsome girls in effigy, was managed with some delicacy, but now the name is given with the beauty without the least compunction. Handsome girls are hunted up by photographers, and taken from wherever they can be found—from the theatre, the street, the ball-room, or the factory, and many of them are in such demand that I would not be surprised if they would ask a compensation for having their pictures taken. So far, this has only been done in very few exceptional cases. It is strange that these, in many cases indecent pictures, are sent in large quantities to England. A dealer whom I asked for information in this respect, told me that young ladies there place them in their albums. I cannot vouch for the truth of this assertion, and only express the hope that these modern products of our art may be shorter-lived than their predecessors.

Already a new kind has appeared alongside of these indecent representations. It is stereos representing real still-life scenes, decent in every respect, very charming, and of much artistic value. They represent fortune-tellers playing cards, girls at the spining-wheel, ladies reading a letter, girls looking out of the window, and many other subjects; they are so elegant, showing so much study in every particular, that the severest art critic finds nothing to find fault with, and the subjects are so well selected that they must give, to any one looking at them, general satisfaction. The originators are again Loescher & Petsch, who have already produced so much that is beautiful. I am curious to know how long these pictures will hold their own.

I have thus given you a picture of our photographic market, and, by discussing at length the theme of "selling," almost forgotten the theme of "making," but here, also, there is much novelty. Our friend, Mr. Simpson, will have advised you of the publication of Albert's process. The publication caused considerable excitement, but the opinion is general that Albert employs in his process a peculiar press arrangement, on which success depends. Unfortunately, the introduction of the process has been retarded by the long-continued sickness of Mr. Albert.

From the New York District Association of German photographers, and which you have kindly mentioned on a former occasion, I received through its secretary, Mr. Kruger, a very interesting letter, in which he mentions that the negative retouch begins to gain ground in your country. The complaint is very frequent that lead-pencil retouch does not well take hold of the varnished surface of the negative, and Mr. Kurtz, in New York, recommends to rub the varnish with pulverized pumice-stone. A similar recommendation has been made here, and Mr. Grasshoff, our well-known painter and photographer, proposed, for the same purpose, to rub the negative with powder of ossa sepia. This material is very soft, and the powder can be produced by rubbing a piece of it with the finger-nails. The minute scratches which are thus made on the varnish, do not interfere in the least with the printing process.

Still another way, is to rub the varnish with a tuft of cotton dipped in oil of turpentine; such a surface takes the lead-pencil splendidly, but is apt to repel the India-ink a little, which is used for heavy covering.

With negatives that have to stand long use, it becomes a matter of necessity to protect the retouch as well as the negative itself, and hence it is best to retouch before varnishing. Many of our photographers cover for this purpose the negatives with a solution of gelatine of the strength of 1 : 25, or a solution of gum arabic of the same proportion. On the dry layer of gum or gelatine it is easy to draw with lead pencil, or India-ink also can be used, but it requires more practice. The retouched negative is then varnished as usual, and the retouch is as safe from injury as the collodion film itself. Experience, however, has taught us unfortunately, that the gelatine film is apt to become spotted in damp weather, and Grasshoff's process is in this respect preferable.

He covers his negatives with amber varnish, diluted with from 8 to 10 parts of oil of turpentine. The negatives are put away to dry for about twelve hours, and retouched with lead-pencil; afterwards they are varnished as usual.

The best pencils for retouching are the so-called Siberian, which are made of the splendid graphite of the Briskal lake.

I must not omit, while speaking of Grasshoff, to mention his charming carbon prints, which he makes after the method which I published about a year ago, and which is as simple as anything can be. He prints the picture on carbon paper, and washes the latter in the dark with cold water; he then places it on damp albumen paper, the albumen of which has been coagulated by immersion for about five minutes in strong alcohol, and subsequent drying. The whole is pressed together, left to dry, and developed in warm water. The picture is now on the albumen paper, and no further transfer is necessary. As no caoutchouc paper is used, and as any kind of albumen paper is suitable for this purpose, it is evident that the process is much cheaper, and I hope that these beautiful pictures will assist in bringing the carbon process into favor.

Since Obernetter introduced his collodio-chloride of silver paper, there have appeared many similar preparations, all of which, however, had the drawback that the film was apt to leave the paper, and the pictures were easily injured. A Mr. Ost, in Vienna, has recently prepared a collodio-chloride of silver, with which he makes paper free from this fault, and which even permits the entire removal of the film from the paper and its transfer to glass or porcelain. Mr. Ost has made faultless positives on glass of a size of twenty inches, and by repeating the process has produced new negatives of such excellence that they can be used as the original plates. Such a process is of the utmost value for the reproduction or multiplication of rare negatives; as for instance, landscapes, or the portraits of deceased persons. The original negative can of course be retouched, likewise the positive; and we will finally obtain a negative in which all the results of the different retouches are incorporated.

Mr. Herzog, in Bremen, a well-known landscape photographer, reproduces all his stereos by this process, and only prints from the duplicated negative. Mr. Ost has sold his process, and I expect to be able to give you the formulæ in my next letter. Finally, I will mention a discovery of Messrs. Truk, Hofman, and Schrank, on a frequently occurring and rather peculiar appearance.

On such photographic portraits where a dark part of the clothing is contrasted with a light background, we often notice that the dark portion shows a light fringe; this fringe becomes most prominent when the developer flows from the dark part towards the lighter ones. The reason of this is, that the developer carries the silver solution, which is necessary for the development, from the place where the developer is poured on towards the opposite side. Besides this circumstance, the margins of the lighter parts will find in the darker spots which do not attract silver, an abundance of silver-producing material, and in consequence they will cover themselves more thickly with it than other light portions not so favorably situated.

A modification in the mode of pouring the developer on will partially remedy the evil, but a light object on a ground, as for instance a hand on a black cloth coat, will always appear too light; shading the hand will somewhat lessen this defect, but usually the contrast of light and shade appear stronger in a photograph than what they actually are.

A curious case which belongs to this class of appearances I have lately observed. If we focus exactly on a drawing or a piece of white paper, and now take a picture in such a manner that we open the plate-holder successively, after one, two, three, four, five, six seconds time, we will find on development that the stripes are differently colored. The same stripe will look lighter on the side where it follows a more transparent one, and darker on the side next to a denser part.

Yours, very truly,

DR. H. VOGEL.

PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

THE regular monthly meeting was held Wednesday, April 7th, 1869, at 8, P.M., the President, Mr. Frederic Graff, in the chair.

The reading of the minutes of the last meeting was dispensed with.

Professor Charles F. Himes and Dr. G. G. Percival were elected members of the Society.

The Committee on Prize Photographs was discharged.

Mr. Davids moved that the Corresponding Secretary be authorized to correspond with other photographic societies, for the purpose of exchanging specimens of photography. Approved.

Mr. J. C. Browne read a communication upon the subject of "Enlargement of Small Landscape Negatives by the Solar Camera," illustrated by several large pictures.

Mr. Edward L. Wilson presented a number of excellent card-pictures, made from retouched negatives by Messrs. Draper & Husted, of Philadelphia.

Mr. Wilson also exhibited a great variety of very interesting photographs, viz.: from Mr. Thomas Gaffield, Boston, Massachusetts, several good specimens of leaf and fern prints; from Mrs. S. A. L. Hardinge, Brooklyn, New York, three colored portraits made upon albumen prints covered with a thin sheet of wax, the coloring applied upon the surface of the wax; the effect was very pleasing. From Mr. Ernst Milster, Berlin, Prussia, an assortment of superb photographic copies of oil paintings; these prints were much admired and due credit given to the artist. From Mr. E. Edwards, of London, a great variety of carbon prints. Mr. Edwards is the competitor of Mr. Swan in the carbon process, and claims the discovery of a new plan of transferring which saves time and improves the result. The prints exhibited were different in subject, size, and color. As it is of great importance to simplify the transferring process, it may be hoped that Mr. Edwards's discovery will make carbon printing more popular. Mr. Wilson stated that the price of these prints is now low enough to compete with albumen pictures. From Messrs. Blunt & Co., New York, three of Mr. Schnitzer's newly invented Hemispherical lenses, one of six inches, and a pair of stereoscopic three-inch focus. The advantage claimed for this lens is, that it can be made to answer the purpose of two separate lenses by removing the back combination; also, that it is an improvement upon the celebrated Globe lens.

Mr. Wilson stated that Mr. C. W. Stiff, from Salem, Massachusetts, was present for the purpose of exhibiting before the Society Mr. Proctor's apparatus for photographing at night by magnesium light.

Mr. Stiff was introduced to the members, and explained the manner of taking photographs by the use of Mr. Proctor's apparatus. Several pictures were made during the evening. Although a very ingenious contrivance, its practical use was somewhat doubted by those present.

Mr. Marcy's new form of magic lantern was then shown. It differs from the ordinary magic lantern by the use of a new construction of lamp, burning coal oil, which gives a much larger amount of light than any lantern depending upon oil or burning gas for illumination. It is not claimed that the light is as bright as a lime light or magnesium light, but, for ordinary purposes, it answers remarkably well, avoiding the large expense and annoyance of keeping either of the above-mentioned kinds of illuminators in good working order. This lantern is exactly suited for the exhibition of pictures at home before a small audience, and might readily be made of additional interest by using glass positives of home manufacture. The lantern is made of sheet-iron, is very portable, not likely to get out of order, and no danger of fire. It has one defect, however, that should be remedied. The lens furnished with the apparatus is *uncorrected*, and not so good as it ought to be. To photographers this is easily overcome by substituting a photographic objective of one-quarter or one-half size. As the lantern is, in other respects complete, it is unfortunate that the want of a good lens prevents it from being perfect.

Glass positives were exhibited by Messrs. Borda, Guillou, Sargeant, Tilghman, and Browne.

It was ordered that one of Mr. Marcy's magic lanterns be purchased for the use of the Society.

Messrs. Wilson, Hood & Co., exhibited a new form of stand, known as the "Perfect Camera Stand." It is seldom that record is made of a more "*perfect*" piece of apparatus.

The unanimous thanks of the Society were tendered to Messrs. Stiff, Wilson, and others, for the exhibition during the evening.

On motion, adjourned.

John C. Browne,
Recording Secretary.

NEW YORK CORRESPONDENCE.

The bright spring sun has had its effect upon photographers as well as upon their wives; the yearly mania of cleaning has extended its sway as far as the gallery and reception rooms of the craft, where we see new carpeting, new accessories, washed windows, and every other sign by which evidence of renewed and vigorous life tells its story.

That all are "fixed up," I regret to say, is not the case, but most are; some never will be. The most noticeable are the changes of Kurtz, who will, in future, be found corner Eighteenth Street and Broadway; Fredericks still at the old number, but changed much for the better; Gurney now on Fifth Avenue in luxurious quarters.

At the last meeting of the Photographic Section of the American Institute, much was said by Messrs. H. T. Anthony, Johnson, Tillman, and Van der Weyde, upon the formation of the image on the silvered plate, whether chemical or mechanical. Inasmuch as it was not settled (nor is it likely to be), I forbear any detailed report of it.

Mr. Anthony called attention to a new process by Albert, of Munich, as published in a recent number of the *Photographic News*, with which he was favorably impressed, and which, for large work or where great numbers were wanted, would give our art a commercial value, which, as yet, it has not acquired. You will, no doubt, have the process in full in your current issue.

Nothing else of general interest transpired.

I cannot permit this letter to leave my hands without entering a protest against the now popular mania of velocipede riding, which muscular sport, one that requires more legs than brains, I regret to announce, has captivated one of our shining lights, no less a luminary than the veritable author of a series of serio-comic letters, well known to all a few years since as the "Adventures and Experience of Daddy Long Legs."

Your correspondent protested when he first beheld said gentleman astride of one of "them things." It was lost, however, as the said "two-wheeler" declared it was the very thing for a photographer to get about upon; he intended having a rack behind to carry his traps and other fine theories, which may do to dream about, but will never come into use, photographically.

I called attention, in a recent letter, to the lenses manufactured by the New York Optical Works, and which were spoken of therein, from trials made by Mr. Newton, since which time I have faithfully tested the Hemispherical for views, and can, of my own knowledge, pronounce them unsurpassed by any lens with which I have ever worked, in all points, which, to the photographer, are so important, viz., depth, field, even illumination, and rapidity. Some trials which I hope soon to make comparatively with lenses of celebrated manufacture, I shall report in detail for the benefit of your readers, in which I shall give every item of interest, that each may judge for himself.

It is with pleasure that I call attention to a work recently published, entitled, "How to Paint Photographs in Water Colors," by George B. Ayres, it being, beyond all comparison, the most practical and valuable work of the kind with which I am acquainted, and, from its plain and clear style, must prove of inestimable value to every photographer. Its value is not alone to him who wishes to paint, for the chapters upon accessories, furniture, carpet, and backgrounds, are just such plain statements of our wants, and direction to our choice and use of such, as will be of benefit to all. The "Practical Directions," a series of general rules, are gems of clear-headed common sense, of value every hour of the day. I am sorry to state that my copy of this book was stolen (that is the only word), by an artist of high fame in this city, who, when asked for it, stated that it was too good to give back, the best work on water coloring he had ever seen, and he intended to keep my copy. I have secured another, however. C. W. H.

BOSTON PHOTOGRAPHIC ASSOCIATION.

The second monthly meeting of this Association was held at Mr. J. W. Black's studio, 173 Washington Street, on Tuesday evening, April 6th, at eight o'clock.

After reading the records of the previous meeting and the transaction of preliminary business, Mr. Loomis, President of the Association, congratulated the members present upon the excellent commencement which had been made, and called the attention of those now present for the first time, to the Constitution and By-laws, which have been printed, and are now ready for distribution.

Prof. O. W. Holmes had been invited to be present and address this meeting, but a communication, received at a late hour, announced his unavoidable absence.

On motion of Mr. Black, it was voted that a committee of two be raised to solicit names of members to the National Photographic Association. Messrs. A. S. Southworth and E. L. Allen were chosen that committee.

The President declared a recess of a few minutes for this committee to act.

After the meeting had again been called to order, the committee reported twenty names obtained to the National Photographic Association, and a number additional to the Boston Association.

The subject-matter of the National Photographic Convention was discussed, but nothing definite, as to arrangements, was announced, the committee not being in readiness to give particulars.

Among other interesting statements, one from Mr. Black, announcing that to-day bromide was used for the first time for over six months in his gallery, and then only for experimental purposes, was received with marked demonstration of interest.

Mr. D. P. Burrell, of Bridgewater, Massachusetts, stated that he had not used bromide for over a year and a half, and had been successful without it.

After the business of the Association had been completed, another exhibition of transparencies was given through the courtesy of Mr. Black.

Several gentlemen contributed to this exhibition, among whom were Mr. A. Marshall, who presented some very superior specimens.

Mr. H. W. Tupper also exhibited some very creditable plates.

Mr. Black introduced a number of new and highly artistic pictures of animals, etc., of the London Zoological Gardens.

The exhibition was interesting, and Mr. Black received the thanks of the Association for his kindness and liberality.

The meeting was the largest yet held, and the Association may now be considered a success.

Adjourned. FREDERICK C. LOW,
Secretary.

OUR PICTURE.

When they open the current number of our Journal, our readers will, first of all, look at the picture; so they have all learned that it is from the studio of Mr. A. J. Fox, St. Louis, Mo. It has been very appropriately named by him "The May Queen," and is a most appropriate picture for the May issue of our Journal.

Our readers will not be slow to discover the excellencies of the picture. White drapery in such profusion is seldom better secured, and the whole composition is very tasteful and creditable. We are also indebted to Mr. Fox's taste for the beautiful mounts on which the prints are mounted, as they are of his own design.

The fair subject is Miss Katie Anderson, the daughter of one of the most respectable gentlemen of St. Louis, and as in the case of the "May Queen" of old, Miss Katie and all of us owe much of the beauty of the picture to her tasteful mother. Certainly we should feel grateful to them all.

We have recalled to mind Tennyson's beautiful poem, sung by all of us in happy school-days, "that were as long as twenty days are now," "The May Queen," to try to discover what portion of it our fair subject is supposed to be impersonating in the picture.

We have come to the conclusion that she has just been to "gather knots of flowers, and buds and garlands gay," and is addressing her mother in the words of the poem:

"As I came up the valley whom think ye I should see,
But Robin leaning on the bridge, beneath the hazel-tree?
He thought of that sharp look, mother, I gave him yesterday,—
But I'm to be Queen of the May, mother! I'm to be Queen of the May!

"He thought I was a ghost, mother, for I was all in white;
And I ran by him without speaking, like a flash of light.
They call me cruel hearted, but I care not what they say,—
For I'm to be Queen of the May, mother! I'm to be Queen of the May!

"They say he's dying all for love, but that can never be:
They say his heart is breaking, mother,—what is that to me?
There's many a bolder lad 'll woo me any summer day,—
And I'm to be Queen of the May, mother! I'm to be Queen of the May!"

The picture is a very refreshing one, and more so to us all no doubt than the "sharp look" poor "Robin" got, was to him. The negatives were made by Mr. Fox, to compete for the $50 prize, but arrived too late for the inspection of the judges. The prints were also made by Mr. Fox, and are very fine in our estimation.

VOICES FROM THE CRAFT.

The last number of your Journal is before me, with its neat typography and excellent photographic instruction. It is useless for me to commend the energy and enterprise which its pages evince, to any of your readers, but it has given me pleasure to urge its adoption in circles of marked prejudice against what is termed the "new-fangled notions of the day." We need just what your Journal is striving to accomplish, a higher perfection of the art, and nothing is more encouraging than the spirit of mutual assistance and progress manifested by the fraternity.

There is one point, however, which is a source of spirited argument in this State, and in fact, all through the country; I refer to *cheap prices*. In a city not far distant they are favored with the following schedule: 4-4 photographs, $1, duplicates, 50 cents; 4-4 Ferrotypes, 50 cents; carte de visites, $1 per dozen; tintypes, three dozen for 25 cents, and all grades of work at the same ratio. Now these prices would suggest a cheap class of work, but I assure you that the quality issued is as good as the State affords, and some of it would compare favorably with the productions of larger cities. Poor artists initiated the system, and the higher grade followed suit. It is about the same in this city, and in many surrounding places I could mention.

I think that this financial condition of the business is deplorable, especially where men are dependent upon their avocation for the support of themselves and families; it retards advancement and dampens enthusiasm; but it is certainly "a long lane that has no turning," and though our lane at present leads us through the valley of humiliation, it will yet merge into the broad fields of enlightened appreciation. The time is hastening when communities will be better able to note the disparity between an outrageous apology for a picture, and an artistic production, and when that "millennium" arrives, good artists need never quake at the appearance of some wandering "tintypist," whose only argument is the cheapness of his abortions. The lack of proper remuneration has also another feature, it is "killing out" those men who have no heart in the cause, but simply use it for the dollars and cents that can be gleaned. Money is very acceptable to any of us, it is true, but a genuine artist will have the same feeling of earnest pride for his "creations" that is felt by the painter and sculptor. Therefore, I say to the wavering, "stick," and with patience and perseverance we will WORK for the good time coming.

OTIS.

CONCORD, N. H.

The policy of raising prices, we hope, will be one of the topics for discussion, in Boston, in June.—ED. P. P.

AN amateur, who desires to amuse himself with making a few transparencies for the magic lantern, in the best style of the photographic art, would be glad to be advised by some one of experience, as to a few essential points. He would be glad to be informed as to which is the best process for the purpose; are the slides best printed by superposition, or copied in the camera? What is the method of painting them, and what is the general treatment of them after the photograph is made?

Any information, communicated through the columns of "*The Photographer*," will be thankfully received, and if the respondent would kindly allow himself to be put into personal communication with the writer of this, he would confer an additional favor.

AMATEUR.

THERE has been a question raised here, whether a worked negative can be entered in competition with plain photographs?

At our late State Fair to "Photography," the first premium was offered for the *best plain photographs.*

One photographer entered prints made from *retouched* negatives as *plain photographs.* The other exhibitors protested that in no wise could prints from *worked negatives* be considered as plain photographs.

Knowing your Journal to be the highest authority in this country, you will do me, and the photographic fraternity generally, a great favor, to discuss this question in your next issue.

What I have always considered a plain photograph, is a print made from the negative before any retouching to the negative is done.

By giving us your opinion on this subject, you will very much oblige a photographer of twenty-eight years' experience.

Very respectfully yours,
W. W. WASHBURN,
113 Canal Street, New Orleans.

In the common acceptation of the term, prints from retouched negatives certainly cannot be classed as *plain* photographs, and Mr. Washburn is undoubtedly right.—ED. P. P.

PHOTOGRAPHIC SUMMARY.

BY M. CAREY LEA.

FRANCE.

Carbon Printing.—Jeanrenaud's method of printing by one transfer, has recently been described. Despaquis affirms that he has improved upon it by substituting *gelatine* for the albumen. Jeanrenaud took albumenized paper and coagulated it with alcohol, pressed the exposed tissue on the albumen surface moistened with water, rolled it with an iron roller covered with flannel, and developed. Despaquis substitutes gelatine, which he renders insoluble by dipping it into a solution of alum.—*Moniteur.*

Carbonate of Silver Paper.—This paper, which keeps indefinitely after sensitizing (but requires the application of a pad behind it that has been strongly fumed), is a good deal praised. The paper can be kept as long as wanted (it is sold sensitized), and the prints can lie for weeks before toning and fixing. It now appears that the fumed pad affects the varnish of the negatives, so that, when the system of printing is used, the negatives must be differently varnished, viz., with gum which ammonia will not affect.—*Moniteur.*

ENGLAND.

Rapid Paper. — Mr. Bovey asserts that he has obtained a preparation so sensitive, that a minute of exposure to the light of a paraffine lamp suffices to produce a positive. —*News.*

Cracking of Negatives. — Mr. Edwards, finding many of his negatives destroyed by cracking, changed his method of storing in boxes, to fastening in parcels with blotting-paper between each, and found the cure perfect.—*Ib.*

[The same result has been frequently published before. Cracks in the varnish may, to some extent, be remedied by exposing the negative to the vapor of alcohol, by placing it over a pan of the spirit for some hours or a day, or by flushing the plate with alcohol, or by rubbing lampblack into cracks.]

Delicate Test for Nitric Acid. — To a drachm of oil of vitriol, diluted with an ounce of water, add ten drops of commercial aniline. If not colorless, decolorize with animal charcoal. Put a little oil of vitriol upon a porcelain plate, add half its bulk of the aniline solution, dip a clean glass-rod into the solution to be tested, and draw it through the mixture on the porcelain plate. If any nitric acid be present, a red streak will be produced.—*Br. Journal.*

Crayon Photographs. — Sarony has attracted a good deal of attention by a device of printing transparencies (not positives or ambrotypes) on glass, and setting under them lithographic backgrounds, shaded for the purpose. They are made of some size, viz., 14 x 10, enlargements from thin negatives of card size. The glass is collodionized with a ripe collodion and exposed before a magnesium lantern for about thirty seconds. Develop with pyrogállic acid, 1 grain, and citric acid, 1½ grains to the ounce. Development not to be carried too far; lights left very clear; fix with hyposulphite. If the tone is too blue, pour over it—

Bichloride of Mercury, .	10 grains.
Chloride of Ammonium, .	10 "
Hydrochloric Acid, . .	2 drops.
Water, ...	1 ounce.

A good effect is obtained with plain paper as a background, but a better with a sketchy lithographic design. The pictures obtained are greatly liked.—*Ibid.*

GERMANY.

Alcohol in Collodion.—A preponderance of alcohol increases the sensibility and keeping qualities, but the alcohol should be very free from water.—*Mittheilungen.*

Streaky Plates. — Specimens of streaky negatives were shown at a meeting of the Berlin Photographic Society, the cause of which was found to lie in mixing two baths for use, and not sufficiently stirring them together.

[I have elsewhere pointed out that two liquids of different richness, as an old and new bath, cannot be depended to mix with each other by simply pouring one into the other; and, if a plate be inserted under these circumstances, it will almost certainly be streaky. Agitating the plate to mix the bath will not be sufficient, the foundation of the streakiness is laid at the moment of immersion.]

Drying Plates.—I published, some time since, in this Journal, a method of drying plates over sulphuric acid, and remarked that the effectual drying thus accomplished eliminated a great many sources of failure. H. Dubost writes to the *Archiv*, that since adopting this method he works coffee plates with absolute certainty.

WRINKLES AND DODGES.

I HAVE been troubled a great deal with irregular markings on the end of the plate first dipped in the bath. The cure for them is to lower the plate *very slowly* into the bath solution. Why it cures, I don't know, it is enough for me to know that I have found it an *unfailing remedy.*

H. H. WOOD.

THE following is my method of doing away with cyanide for fixing ambrotypes: Fix the picture in a hypo-bath, then wash and lay it in a strong solution of chloride of ammonia, made faintly acid (with nitric acid), until the picture becomes round and clear; then wash and finish in the usual way. Care is necessary in the use of the acid, as an excess of it will attack the shadows and spoil the picture. It works well without the acid, but I think the acid brightens the image.

H. LAZIER.

In the last number of the *Philadelphia Photographer*, Professor Towler gives a formula for albumenizing negative glass. I do not doubt but that he has given a very good formula, but my objections to it are, that it is too complicated. I have albumenized my negative glass for the past four years. I take:

White of 1 Egg and beat to a froth.
Rain Water, 6 to 8 ounces.
Iodide of Potassium, 5 to 12 grains.
Liq. Ammonia, 2 or 3 drops.

Filter either through cotton or filtering paper. I first have my glass in a strong solution of nitric acid and water, so as to cut off the dirt and grease; take the glass out of the acid solution and wash well under the tap; then flow with the albumen, and rear away to dry. As soon as dry they are ready for use. Never brush the albumen side. If the dust cannot be blown off, clean the plate over again. S. P. Tressler.

As you request, I give you my plan to avoid retaking negatives: I tell my customers I do not warrant my pictures to please, I only warrant them good and to please myself, and when *they* are not pleased, and my work is all right, I charge fifty cents for a new negative, and, as a result, I do not have a negative to retake more than once in two weeks at least; whereas, before adopting the rule, I think one-third of the ladies would sit over and try a different dress almost as many times as they had different dresses.

My plan in getting along with babies, is always to charge fifty cents for my trouble, if I fail to get a picture after trying three times, and, any one having common sense, will find no fault, but consider it just and proper. I think, after two years' trial of the above rules, it saves a sight of trouble, and is *better every way*. J. C. Mills.

Photographers who use glass-baths, will find it a great protection to them if they would place in the bottom of them a layer of pounded glass. If a plate should fall off the dipper, the pounded glass prevents it from striking and breaking the bath. Moreover, the small pieces of film, and other things that sometimes float around in the bath, are caught by the pounded glass, and kept from doing injury to the sensitized plate. C. Kleinhaus.

SALAD

For the Photographer.

A year ago we were all fighting the Bromide Patent.

"The Ardtully Dress, Printed by Photography," is advertised in England.

Several of our foreign contemporaries publish the rules of our Exhibition.

A photographer who told an old lady he could take a picture of the sun, was asked to take a picture of *her* son in "Austeraylia."

A humorous and affectionate father in England circulates the cartes of his six children among the benevolent, with a view to securing them "comfortable homes." "Willing benefactors wanted."

Some year ago, a young Irishman, just arrived from the "bogs" of Ireland, came into my gallery, and, stepping up to the operator accosted him thus: "And ken ye draw a likeness of my sister in Ireland, if I give you a description of her?"

An Irishman and his lady love once came in for a picture, to be on the same plate together. He was about emigrating to California, and to leave her behind. After she had fixed all the jewelry so as to make the best display, and pinned on a big bull's-eye watch conspicuously, he says to her: "Come, Bridget, let us take hold of hands together, for we shall soon be siperated together." W. S.

The photographer who is daily making pictures of all sorts and classes of people, often meets with much to amuse him, as well as to try his patience. Not long since I was making a sitting of an old lady who lived not a hundred miles from the shore of the Delaware Bay. After being placed in position, a Willard 4-4 camera was placed on the stand. She was told to look at a mark on the box, a little one side of the tube. "La, me! look at that!" she says, "I thought you had to look right into that 'ere *spout*."

Editor's Table.

No Agents.—We desire to say that we employ no travelling agents. All stock and news dealers are authorized to take subscriptions for us, and unless parties who represent themselves as being our agents, are connected with some respectable house, please discredit them Of course we except our *subscribers*. who are continually giving us their kind aid. *Beware* of process mongers, who use our name without authority to do so.

The August (next) Eclipse.—In the general appropriation to the *Naval* Department, made by the last Congress, the following was included:

"For observation of the eclipse of the sun in August, under the direction of the Superintendent of the Nautical Almanac, five thousand dollars, or so much thereof as may be necessary."

We are glad to see this, and are making personal efforts to secure the appointment of skilled photographers for that important service.

The Employment Bureau is open for work. Almost daily we are written to for operators. Those who desire situations will do well to send us their addresses.

Mr. William J. Land, whose name is familiar to many of our readers, has removed from Columbus to Atlanta, Georgia, where he continues to manufacture standard photographic chemicals, with Messrs. Pemberton, Wilson, Taylor & Co. Mr. Land is the authorized agent for subscriptions to our Journal, and has added considerably to our list. He is deserving of the encouragement of the photographers of the South, and will no doubt receive it amply. We are assured that his chemicals are equal to the best.

"Actinic Darkness."—Prof. Henry Morton, Ph. D., is preparing a paper on photographing the invisible rays of the solar spectrum for our pages, which we hope to present with a diagram in our next issue.

Mr. T. C. Matthewson, Tremont, Illinois, writes: "Now, I confess that whatever merit as a photographer I possess, is due to the *Philadelphia Photographer*, and I write it simply as an act of justice."

On page 32 we stated that Messrs. Chance Bros., were making glass for spectroscopes of refractive power at 4.45, when it should have said specific gravity.

What You May Expect.—During the coming months we shall present our readers with admirable specimens of our art by the following eminent artists: W. J. Baker, William Notman, G. Washington Wilson (Scotch landscape), Helios (Yo Semite Valley), H. P. Robinson (genre cabinet), Walter B. Woodbury (photo-relief), and possibly an Albert photo-lithograph, a Johnson carbon print, and prints from negatives by M. Adam Salomon, which are promised. There are many treats in store for you. Several of the above are now being printed, negatives being in hand.

Albert S. Southworth's Patent for a plate-holder for cameras (No. 12,700), was extended April 10th, for seven years longer.

This is a part of the sliding plate-holder patent, so odious to some of our readers, and better known as the Wing-Ormsbee patent.

Messrs. Kilburn Brothers, Littleton, N. H., have added several exquisite stereos to their collection this month, the majority of them being snow-views in the White Mountains. Number 425 is an admirable one, showing Mount Washington twenty-five miles distant; the Profile House, Eagle Cliff, and Mount Cannon, all snow-clad, are all examples of fine photography. Number 421, "Farmyard," is one that will bring back boyhood memories to many. "The Birds (stuffed) of New England," is the subject of several admirable stereos, by the same excellent photographers, who are now pre-eminent among their fraternity in this country.

Mr. Simpson's *Year Book of Photography.*—We have received since our last issue a good supply of this invaluable annual. It is impossible to conceive of the same number of pages containing *more* of valuable, practical. short. sensible, useful papers than it does. There seems to be something from every noted photographer in England. Mr. Simpson's reputation among our readers is sufficient to make his book sell in this country. We received two hundred and fifty copies only, and they are partly gone. Secure them at once. Please read the announcement in *Specialties.*

Mumler, the *spirit* photographer, has came to grief, having been denounced by the Spiritualists, and arrested for obtaining money under false pretences. It is just.

We received a very pleasant surprise just before going to press, in a number of cabinet photographs from Mr. John A. Scholten, St. Louis, Mo., which are really elegant. Mr. Scholten has been one of our subscribers since we began our first volume, we believe, and yet these are the first examples of his work we remember having seen. The subjects are artistically posed; skilfully lighted; the chemical effects are all that can be found in the best every-day photography of the country. A great deal is added to their effect by the mounts Mr. Scholten uses, which are about 8 x 10, with a wide lithographed design covering nearly the whole margin, and composed mainly of fine lines. At a distance, the effect of a *tint* is given. They are printed in black, but would be still more effective if printed in some neutral tint, we think.

At the May meeting of the "Photographic Society of Philadelphia," the competitors for the two prize medals will exhibit their prints and negatives, and a committee will be appointed to judge of their merits during the evening, so that the award can be made promptly. Much interest is excited in the matter.

"The Crown of New England" is the title of the last new chromo issued by Messrs. L. Prang & Co., Boston, copied from the renowned painting by George L. Brown.

It is a view of Mounts Washington, Jefferson, and Adams, at early morning in October. It is singularly beautiful. We have in it the richest robes of the ripening leaves; Mount Washington peering above its compeers, with the first snow of autumn upon its highest peak, daring the sleepy, mellow sunlight to come up and kiss it away, while the floating clouds appear to say, "Come up higher." One side of the mountains is soundly sleeping in shadowy robes, while the other is all aglow with the warm morning sun; the heavens flecked with cloudlets, and a sky most effectively transparent.

As a chromo, it is one of Messrs. Prang & Co.'s happiest successes. It is said to be a faithful copy of the original, which was purchased by the Prince of Wales for $5000.

This picture meets our ideas of what Messrs. Prang & Co., should make a *specialty*, *i. e.*, large chromos of our own unequalled American scenery.

Messrs. Blunt & Co., New York, have sent us a variety of their new lenses, upon which we hope to report in our next issue. Our New York correspondent speaks in the highest terms of them.

"How to Paint Photographs."—Of the one thousand copies of this invaluable book issued by us a little over six weeks ago, less than one hundred copies are in our hands unsold. The sale has exceeded our most sanguine expectations. All we can add to what we have already said for it—and we cannot say too much—is, secure a copy before they are all gone. Speaking of it, Mr. E. W. Peirce, Galena, Ill., says: "I pronounce it a very valuable book, and useful not only to the professional colorist, but to the photographer, giving valuable ideas, which will assist him, both in his retouching and ordinary work." It is pre-eminently all that. See New York Correspondence.

We have made several practical tests of Mr. Proctor's night apparatus recently, with very satisfactory results. We have before described it in our pages. When sitting for a picture *in* it, the feeling one experiences is quite strange and novel. Imagine yourself closed up in a bowed wagon-cover, a clock-work begins to hum, a bright light springs forth, eclipsing all others around, a few seconds, and the picture is made. Of course, the apparatus will not do as *well* as sunlight, and the size that can be taken with it is limited to the whole-plate. But it will be a boon to many who are so engaged, that they cannot sit for a picture during the day. The light is quite manageable. Negatives require about one minute, and ferrotypes twenty-five to thirty seconds. Some of the latter, we have seen, are quite as good as those taken by sunlight.

Artists and photographers, who use brushes, know the importance of having *good* ones. They are sometimes difficult to procure. Messrs. E. Clinton & Co., 908 Chestnut Street, Philadelphia, pay especial attention to this branch of their business. They are probably the largest brush manufacturers in the country, and have the best facilities for filling all kinds of orders.

Mr. A. Milt. Lapham has sent us a design for a very useful, cheap, head-rest, supported at the back by a prop. It seems to answer admirably.

Frank Leslie's Illustrated Newspaper, edited by Hon. E. George Squier, is becoming a most valuable family newspaper, and is greatly improved of late. In a recent issue was produced wood-cuts from Dr. Vogel's eclipse photographs, with a graphic account of the doings of Dr. Vogel and his associates at Aden. The "Illustrated" is, in the broadest sense, a *newspaper*.

The Western News Company, Chicago, have recently occupied their splendid new store in the Page & Sturgis Block, State Street. Mr. John R. Walsh, the able manager, when we began the issue of this Journal, kept a small book-store, and became one of our first agents to take subscriptions. We now send the "Company," a huge package, monthly, and certainly it goes to no handsomer news palace than the new one of the Western News Company.

"**Pearletta Pictures.**"—This is the name given to a new style of pictures, the invention (patented), of Mrs. S. A. L. Hardinge, 57 Fleet Street, Brooklyn, New York. They are plain albumen prints, which are given a surface for coloring upon by being covered in a peculiar manner with sheets of white wax. The specimens before us are exceedingly well colored and very beautiful. The surface seems very fine for coloring upon, and equally adapted for oil, or water colors, or India-ink. It is not yellow like ivory, or will not break like porcelain, and is cheaper than either. They are very effective, and the "patent finish" is particularly useful for copies of other pictures.

Mr. Willard Marshall, Guelph, Ontario, has sent us some nice cabinet portraits, showing good and clean manipulation, but in most cases spoiled by badly painted backgrounds. "The Trappers" is a very good composition and well managed.

Mr. H. B. **Hillyer**, Austin, Texas, has sent us a variety of prints, which show him to be a conscientious, careful worker, striving to excel. His pictures are exceedingly sharp. He says he never was in a gallery outside of his own city, and the only instructor he has had has been the *Philadelphia Photographer.*

Andrew Khrone is, we believe, the oldest man in the photograph business in this country. He still makes daguerreotypes for our worthy President, Mr. A. Bogardus, and may be seen there any day, always busy. Much as he is prejudiced in favor of them, however, he has consented to have his photograph taken, a fine copy of which we have gracing our sanctum. It is very inspiring.

Pictures Received. — From Mr. Joseph Voyle, Tuscaloosa, Alabama, some prints made on paper that had been sensitized seventy-two and one hundred and five days. Mr. Voyle proposes to make known his method of keeping the paper presently.

"Sunlight in Winter," is the subject of a very effective snow-scene from Mr. J. H. Wyckoff, Ripon, Wisconsin.

From Mr. Thomas Fury, 76 Bowery, New York, two creditable cabinet portraits of a young Miss.

"The Old Village Church," is a very pretty snow-view of the old church and trees surrounding, from Mr. Well G. Singhi, Bainbridge, New York.

From Mr. M. Mould, Baraboo, Wisconsin, three very effective views of Devil's Lake, a wild, enchanting spot near Baraboo, where we have tried our own camera. Mr. Mould has excelled, though the views are impaired in beauty on account of having been taken at too great a distance. Shorter focus lenses wanted.

Four very pretty out-door views have been received from Mr. C. S. Judd, Shelbyville, Tennessee, showing skill in the choice of view and in manipulation—all that could be expected in winter time.

Mr. E. S. M. Haines, Albany, New York, has favored us with several very excellent stereos of physiological specimens, colored, showing the effects of disease upon the different members of the human body, such as the heart, larynx, stomach, etc. They must be immensely valuable to the medical student. Mr. Haines has photographed them very skilfully.

Messrs. Cramer & Gross, St. Louis, Missouri, favor us with some cabinet photographs made by the use of their newly-patented body and arm rest. The positions are extremely difficult, and yet there is no trace of motion in the subject.

We have some small specimens by Herr Albert's photo-lithographic process, which bear out all that has been said about them. We hope to see larger ones soon, and to give our readers a specimen print.

We indulge the same hope with reference to Mr. Johnson's new carbon process, described herein, a specimen of which is before us. We shall welcome Mr. Johnson, and his improved process, to America.

Mr. J. H. Fitzgibbon, St. Louis, Missouri, has sent us several cartes and ferrotypes made at night, by aid of Mr. Proctor's apparatus. They are from his first negatives, and would be considered very precious by parties who cannot find time to have their pictures made by sunlight.

OUR ADVERTISING COLUMNS.—Those who have articles for sale, cannot do better than use our *Specialty* column. The following is our evidence:

"Allow me to state, for the benefit of those who do not know this valuable fact: I had, and for some years was trying to dispose of three cameras which were useless to me; one advertisement in your Journal brought me customers for all within ten days after its issue. Can I say more to those who have anything to sell? I think not. Yours, ever, H. W. C."

ANSWERS TO CORRESPONDENTS.

"CONTRIBUTOR."—A very weak solution of cyanide, carefully applied with tincture of iodine, and then well washed, will remove silver stains from black cloth.

J. W. D, VINTON, IOWA.—We can see no advantage in what you suggest. Neither is it new. Some manufacturers of collodion sell their iodizing solutions separately. A minim measure would save time, though your whole plan would be slow and uncertain.

C. L. K., BROOKLYN.—We are assured that it is, but we refused to advertise it, as we do not indorse such schemes.

N. E. BENOIT.—I am using a photograph wagon 9 x 28 feet floor, and 7 feet high. The sides are studded with 2 x 2 inch white pine, dressed and painted. The side sills of the bottom framework are 3 x 6. The floor joists are 2 x 4, and 1 foot apart. The roof is ribbed with white ash 1½ x 2 inches, and 18 inches apart. The sides, floor, and roof are of ¾ inch white pine. The roof is 6 inches curvature, and covered with canvas and painted. The skylight is 8 x 8 feet, pitches northward, and is 6 feet wide, extending from the top to the floor. The dark-room is 3 x 5 feet at the side of the wagon opposite the skylight. At the back end I have a room 3 x 9 feet for printing. In the front is a roofed platform, the same as a rail-car. There are two windows at the sides 6 feet from the front. I put my stove in the front part, and, the pipe running through the dark-room, keeps everything warm. Will be glad to give Mr. Benoit any further information. S. R. SHEAR,
Ossian, Iowa.

"PHOTO."—We should *think* "equal parts of hypo and water" certainly *ought* to fix any print pretty effectually. The slip you inclose seems properly fixed. It does no injury to a print to remove it from the fixing bath and look at it, unless unnecessarily exposed to the light. A properly fixed print should look clear and clean when viewed by transmitted light.

H. B. HILLYER.—I see bichromate of potash spoken of in your Journal as a virulent poison, yet Mr. Lea recommends it with muriatic acid to clean the hands, and with sulphuric acid to clean plates. How is this, and are its fumes unhealthy or injurious to prints or negatives? In answer, Mr. Lea says:

"Bichromate of potash, in conjunction with a strong acid, is undoubtedly poisonous. Still it is less objectionable than cyanide of potassium, which it is intended to replace. If a photographer can succeed in cleaning the hands without the use of either, it is so much the better, but of the two, the bichromate is the less objectionable. The writer has never suffered inconvenience from getting it into cuts, which has happened to him many scores of times.

"The mixture of bichromate of potash and sulphuric acid does not give off any injurious fumes, nor even any odor; except, that if the ingredients be mixed suddenly, they become very hot, and whilst hot give out an irritating fume. The remedy is to add the sulphuric acid in small portions to the other ingredients, and not to reverse this."

ERWIN BAER—To restore old daguerreotypes: 1. Flow them with a weak solution of cyanide of potassium. 2. Wash well with distilled or pure rain water. 3. Dry with a spirit lamp.

HEBER WELLS, PATERSON, N. J.—*Mounting* of chromos or prints of any kind is best done by using a good paste (made of pure wheat starch), free from lumps.

To *prepare* for *varnishing*, use a coat of this same paste on the face of the print. With a hand-colored picture care must be taken not to touch the same spot twice. *Varnish* with mastic or Demar varnish when perfectly dry with a flat bristle brush. To increase the gloss, a second coat may be applied.

S. P. GAUGLER, ASHLAND.—"False backgrounds" may be made in the following way: Take a piece of plain sensitized paper the size of the negative, paste it to the upper edge of the negative, and when the paste is dry, print strongly. Then fold the print over, and lay it flat upon another piece of glass, and cut out the figure carefully with a sharp knife. In this way you get a mask that is always in place, and the subsequent prints will show no line around the image.

A CORRESPONDENT, in Iowa, says he has a ¼-size Voigtlander lens, so quick that he can make a picture of a child between its hiccoughs, and has done so. He wants to sell the lens.

SUPPLEMENT.

THE ANNUAL MEETING AND EXHIBITION OF THE NATIONAL PHOTOGRAPHIC ASSOCIATION.

We have delayed our number as much as we feel warranted in doing, in order to give our readers all possible information concerning the coming National Exhibition and meeting, as this is the last time we shall be able to reach them all until after the Exhibition is over.

The Executive Committee have not *completed* the arrangements fully, but we know enough about them, to say the intention is to make the affair one of great pleasure and profit, and we believe that intention will be fully realized.

The Exhibition will be held in the Horticultural Hall, Tremont Street, Boston, beginning Tuesday, June 1st. The meeting of the Association will be held at the same place, or rather in a hall adjoining, beginning at 2 P.M., same day. All who are members of the Association will receive a notice hereafter from the Secretary, giving them a full programme. Exhibitors will also be notified by the local Secretary, in good season, where and when to ship their parcels. Effort is being made to secure half rates. On this point the Secretary will also inform applicants.

The meetings of the Association will be held daily, until all the business that may be presented is transacted.

The Executive Committee are making effort to have a course of lectures delivered in the evenings, which will be exceedingly valuable and instructive to every photographer in the land, and alone worth the visit to Boston. The contemplated lecturers are, Professor Cook, of Harvard University; Professor Henry Morton, Ph.D., of Philadelphia; Dr. J. F. Boynton, of Syracuse; Professor John Towler, M.D., of Geneva, New York—well known to our readers.

The lectures will be illustrated by brilliant experiments in light, photography, perspective, vision, etc., etc., such as we feel sure have never before been witnessed by our readers. The aim of each lecture will be to instruct those for whom they will be specially delivered, although they will be open to the public, and tickets sold to help defray the expenses. The members of the Association, however, will each receive a ticket for the course, free. Photographers who are not members of the Association will be charged a moderate admission fee. These lectures will be a most important feature of the reunion, and worth thousands of miles' travel to hear.

One evening will be devoted to the exhibition of glass transparencies in the magic lantern, a rare and valuable collection of which is being prepared, specially for the purpose, by Mr. O. H. Willard, No. 1206 Chestnut Street, Philadelphia, who is probably more skilled in that branch of our art than any one connected with it. Mr. Willard desires us to state that he will gladly make transparencies, and exhibit them, from any good negatives that may be sent him, free of charge. Those who have good landscape negatives or portraits of celebrities, would add to the entertainment by sending them to Mr. Willard for the purpose. Those who print transparencies themselves, would do well to bring their best ones with them to Boston for exhibition in the lantern. The size should be 3½ x 3½ inches.

In addition to the above, will be *the Exhibition.* This, we look forward to being the grandest affair of the kind ever known in this country, judging from the number of applications that have been made so far, from all over our own country, from England, France, Germany, Athens, Greece, Canada, etc., etc. We shall, therefore, see work of all kinds,—silver, carbon, photo-relief, photo-lithographs, transparencies, wet, dry, retouched, colored, paper, porcelain; in fact, examples of almost every known process in great profusion and variety. From all these there is much to be learned, and we trust we shall all go home at the close of the Exhibition more infatuated than ever with our art, yet wiser and better men.

The business meetings will also be interesting, for there it is expected that topics interesting to all will be discussed and acted upon, for the good of the whole craft.

With all these attractions, should we not have a large attendance of photographers from all directions? We believe there will be, and that each man will be amply and fully repaid for the sacrifice he may make to be there.

It is understood that space in the Exhibition is not confined to the use of the members of the Association. All photographers are welcome to space, and if any who are not members have for that reason refrained from making application, they can do so still, and be accommodated so far as possible.

The Hall will be large and admirably lighted, and every effort will be made to make everything show to the best advantage. Although the Executive Committee have limited the time for applications, we belive all articles *received* in time, will be exhibited. Our readers will please note the Local Secretary's circular below. We hope that all who can, will be represented there, not only in person but by at least one frame of pictures.

Those who are not members of the Association should apply for admission at once. This is the last month in which members will be admitted without the payment of annual dues, in addition to the admission fee. This should be taken advantage of *this month* by employers and employees. We hope you will keep the Executive Committee busy all the month, with your applications for copies of the Constitution to sign, which of course they will gladly send you, promptly.

We hope to meet you there, *hosts* of you. Make the sacrifice, and go, and we feel assured you will be glad if you do.

NATIONAL PHOTOGRAPHIC EXHIBITION.

NOTICE TO APPLICANTS FOR SPACE.

In response to a large number of inquiries concerning the probable accommodations for exhibitors, so far as relates to the required amount of *space*, the Executive Committee would say, that it is their intention to provide ample room for all purposes legitimately connected with the Exhibition, and that every effort will be made to meet the wishes of all concerned. As it is the *first* exhibition of the Association, those intrusted with its arrangements bespeak the generous co-operation and forbearance of all concerned, in rendering it mutually profitable and interesting. At this time it is not definitely known what hall-capacity may be required, and as soon as arrangements are fully completed, the Local Secretary will address a *circular of instructions* to applicants, in ample time to forward such packages as they may wish to send.

G. H. Loomis,
Local Secretary.

Boston, April 20, 1869.

The following is the Official Circular of the Executive Committee, received since the above was in type:

THE NATIONAL PHOTOGRAPHIC CONVENTION AND EXHIBITION.

The Executive Committee have the pleasure to announce that they have secured Horticultural Hall, Tremont Street, Boston, from the *first* to the *fifth* of *June*, inclusive, for the First Annual Convention and Exhibition of the National Photographic Association, and they invite a general attendance of all connected with the art, from whatever section of the country they may hail, to be present at that time, and contribute such specimens of their skill and ingenuity as may be of interest and benefit to the fraternity.

Notwithstanding there are a large number of applications already presented for space, representing nearly every section of the Union, in addition to five or six from European artists, it is believed that the Hall is sufficiently capacious to accommodate a still larger number, and, therefore, the time for receiving applications has been extended to the 15th of May, *and no longer*. At that time the Local Secretary will issue a *circular of instruction* to all contributors, giving full directions as to *when* and *where* to forward packages, thus giving ample time for shipment, and enabling the committee to receive them at the place of Exhibition instead of on storage.

The Association will meet at Horticultural Hall on Tuesday, June 1st, at 2 o'clock, P.M., and a punctual attendance of all members and photographers is desired at that time.

The Exhibition will open in the evening of the same day, at 8 o'clock, and continue three days and three evenings—longer, if desirable.

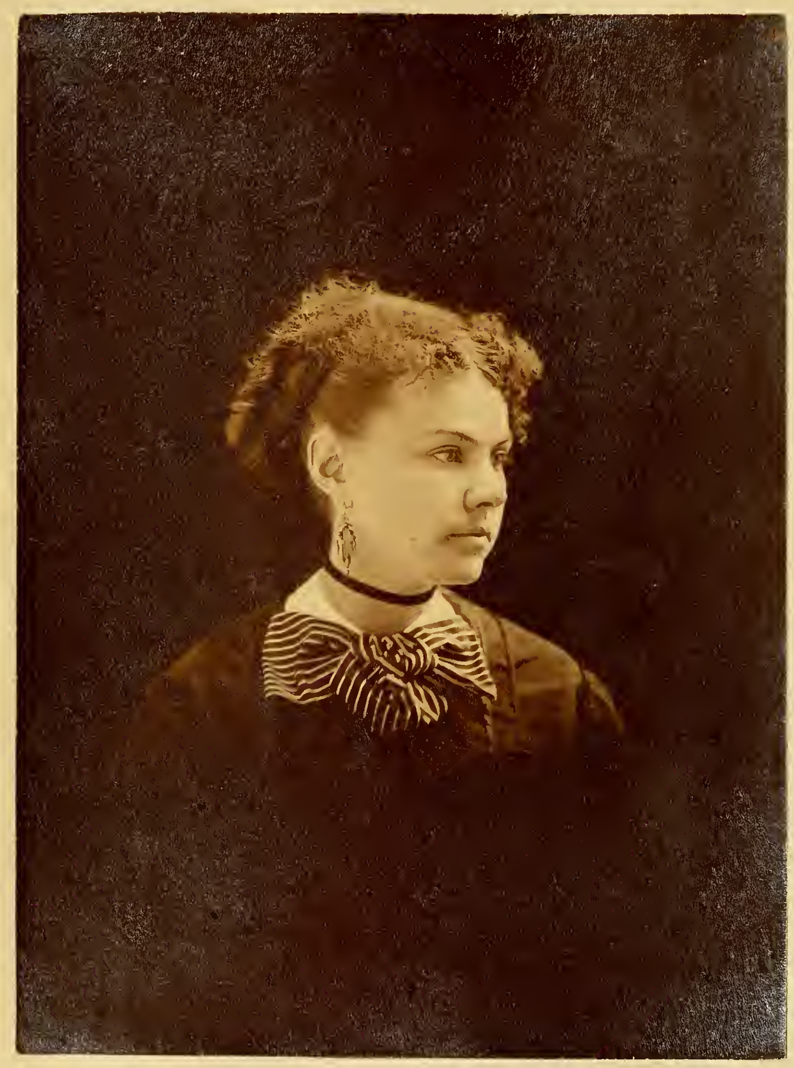
Members of the Association and contributors to the Exhibition will be provided with *free tickets of admission*.

All others will be charged twenty-five cents single admission, or fifty cents for a season ticket—not transferable.

In addition to attractions promised by the Exhibition, the Committee hope to secure the services of eminent Lecturers, and it is also in contemplation to devote an evening to an exhibition of a first-class Stereopticon.

Letters containing applications for space should be addressed to

G. H. Loomis,
Local Secretary,
No. 7 Tremont Row, Boston.



W. J. BAKER, BUFFALO, N. Y.

Boston Public Library

THE

Philadelphia Photographer.

Vol. VI. JUNE, 1869. No. 66.

Entered, according to Act of Congress, in the year 1869,
By BENERMAN & WILSON,
In the Clerk's office of the District Court of the United States for the Eastern District of Pennsylvania.

The Meeting and Exhibition of the National Photographic Association.

Before this reaches our most distant subscribers, the first regular annual meeting and exhibition of *The National Photographic Association* will have been held.

As our readers are aware, it will be held in Boston, beginning Tuesday, June 1st.

The programme of the Executive Committee will be found further on, so all we desire to say here is, *Go!* By *all means* go. You will be amply repaid for a long journey if you do. The Exhibition of American and foreign pictures will be large, and varied, and grand, more so than any photographic exhibition ever held in the United States.

The exhibition of glass pictures in the evening, we *know* will be brilliant and beautiful, and the reputations of the lecturers announced, promise a fund of information and instruction that will be well worth treasuring up.

The meetings of the Association will be full of interest and importance. By all means make the effort to go if you possibly can.

OUR NEXT PRIZES.

We would direct the attention of our readers again to our offer of *three more prizes*, for good work.

Our aim is to encourage and stimulate our subscribers to make greater effort to produce better work.

We do not offer medals, but money, in order that the successful may be compensated.

Please read over our offer carefully, and give attention to the following additional points, which are important.

A competitor may compete for all three of the prizes, if he desires.

Competitors may send negatives of more than one subject, if they desire, but always *two* of each subject, as much alike in pose and treatment as possible. In order to make the labor of the judges as light as possible, however, we would prefer that negatives of only *one* subject be sent.

Retouched negatives will not be admitted. We shall offer a prize for such work hereafter, when we think the profession is ready to compete.

In examining the negatives and prints, the judges are to be kept in ignorance of the names of the competitors. Competitors will oblige us, therefore, by merely putting their initials and address on the *back* of their prints.

This is done to avoid the possibility of anything but *the work itself*, influencing the judges in their decision.

All prints are to be mounted.

Will *you* not *try* to obtain the prize?

ON THE BLISTERING OF ALBUMEN PRINTS.

BY JOHN M. BLAKE.

I HAVE not seen an entirely satisfactory explanation of this phenomenon. It has been attributed to the fact that the fresh water, in which the prints are washed after fixing, tends to flow more rapidly in through the paper and albumen surfaces than the dense solution of hyposulphite of soda does to flow outward. It is said that this action, called osmose, causes a separation of the albumen film from the paper, when the adhesion of the two is not sufficiently perfect, forming blisters by the accumulation of liquid between the two surfaces.

Now, it must have been observed by many that the blisters contain *air*, not water. They occur at times, and then again one has no trouble from them, although the prints may apparently receive the same treatment. When they form, there is a separation of air from the water. This soon floats the prints to the surface, and, on stirring, bubbles will be seen to escape from among them. The air which thus separates, was at first dissolved in the water. This supersaturation of water with air, may be due to the water having been under pressure in contact with air, or to the fact of the water having stood for some time at a lower temperature than that of the room in which the prints are washed. The latter would happen most frequently in winter.

D. Welch, a correspondent of the *Photographic News*, February, 1869, mentions a difficulty, occurring during fixing, due to the separation of air-bubbles from the hypo, causing yellow spots when suffered to remain between the prints. He remarks that he has only been seriously troubled in this way in winter. He says: "They have entirely disappeared since I adopted the plan of lifting the prints carefully from the water after toning, and dipping one corner into the fixing solution, and allowing the print to slide gently down into the solution, face downwards."

Although this does not refer to blistering, it confirms my observation of the more frequent occurrence of supersaturation of water with air in the winter.

Several unsuccessful experiments were made to produce water-blisters. Since osmose is most violent at a high temperature, some prints were taken from the fixing-bath and immersed in water just before it had been brought to the boiling-point. These were soon covered with numerous small blisters containing air; while, upon others placed in a fresh portion of water after it had boiled for some time, and had been removed from the source of heat, no blisters could be detected.

Water holds in solution one-sixtieth of its bulk of air at a temperature of 60°, Fahrenheit. Cold water dissolves a small fraction in addition. This separates slowly when the temperature rises, as would happen if it stood in a warm room. A still larger portion, that is, the whole amount, separates on boiling, and prints thrown in when ebullition first commences, would be subjected to the most favorable conditions for the formation of air-blisters. On the contrary, after water has been boiled it has parted with the air which was previously dissolved in it, and, as the temperature falls, it commences to dissolve air. At this time no air-blisters can form.

We may consider the diffusion of water and hyposulphite of soda solution as the predisposing cause of air-blisters, since they do not form when washing the prints before fixing. But this diffusion alone does not account for blisters, as the following experiment shows: some prints were taken from the fixing bath and washed slowly at first, to avoid the more violent action of osmose, and then the washing was continued with frequent changes of water for twelve hours. At this time there were no blisters upon them. The hypo was, of course, reduced to an exceedingly small quantity, and could not influence the formation of blisters if the washing was continued; but, when these prints were put into water evolving air, blisters formed upon them with as much facility as upon prints just from the fixing bath. This fact proves the insufficiency of the theory heretofore proposed, to account for the blistering of albumen prints.

But we need not conclude from this, that some of the plans that have been proposed to prevent their development are of no value. It was the impression, after a number of experiments made by first immersing the prints in hot water, free from air, that however safe this might be, if followed up by washing in water fit for the purpose, it increased the chances of destructive blistering above that with slowly washed prints, when water containing an excess of air was used for removing the last traces of hypo. We may suppose that the albumen is loosened, as it were, by the previous treatment with hypo followed by water, and that the air has a chance to operate, as will be explained.

If we watch the separation of air from water in a glass vessel, we will observe that the small bubbles which first form on its sides, gradually increase in size, and this without uniting with other small bubbles. In fact, the dissolved air is transferred through the water by the force of diffusion, and does not actually separate in the gaseous form, until it comes in contact with the surface of a bubble adhering to some object in contact with the water. We have the same action during the process of crystallization. An element, or number of elements, which have a tendency to separate and form a solid, are transferred through the liquid until they come in contact with a growing crystal; then separation takes place, and the solid is formed. There is a difficulty in starting the first crystal, often strikingly manifested in certain solutions; but, a crystal once started, the deposit goes steadily forward.

Let us go a step further, and suppose a bubble has started under the film of albumen. The same action could still go on through this film, the air in solution passing through it by osmose, where, if it were not in solution, it could not penetrate. A sharp bend in the paper often appears to start a blister, probably by introducing a particle of air under the albumen film. They are sometimes an inch across, and may contain a half fluid drachm of air. The print is then strangely drawn up and spoiled.

If we can by some means remove the excess of air which the water contains, above the normal amount, we can thus avoid the formation of blisters. There are two means of depriving water of air: by removing the atmospheric pressure, and by boiling. A portion of water so treated, might be added to water containing an excess of air, in such proportion as to leave the mixture simply saturated, and thus the end we desire be attained, without the necessity of subjecting the whole bulk of water to the same treatment. It takes several hours for the air to separate from a half pint of water drawn into a glass and left standing in the room. It would probably take much longer, in case of a larger bulk, unless some objects presenting a large surface were immersed in it, upon which the bubbles might form and separate. It would be inconvenient, in many cases, to depend upon allowing the water to stand before use, in a tank in a warm room, for a sufficient length of time for this separation to occur. A plan which I have tried as an experiment, may be of use where it can be conveniently applied. An inverted, two-quart bottle was elevated to the upper part of the room. It had two tubes connected with it. The delivery tube opened at the upper part of the bottle, the other below. The latter was connected with the water-pipes, and the flow into the bottle regulated by the cock at the pipes. The exit tube was made small, and was extended out the window; down in all, twenty-seven feet. The effect of this arrangement, when the flow was properly regulated, was to partly remove the atmospheric pressure from the water in the bottle, and to cause the dissolved air to separate rapidly. This was made evident in the following way: if the flow into the bottle was stopped for a few seconds, to allow the bubbles to rise and the water to become clear, a fresh supply let in made the water in the bottle at once milky, with the separating bubbles of air, and the water cleared quickly as they rose and broke with a hissing sound at the surface. Although effective in removing air, when delivering a small stream of water, it failed to be so when the supply was increased beyond a certain point. The delivery tube must be made less than one-quarter of an inch in interior diameter, so that the bubbles of air will be carried down the tube with the water, and not allow the water to flow past them, for this would soon destroy the proper action of the apparatus. For this reason it would be necessary to have two or more delivery tubes for a liberal supply. Increasing the size of the reservoir above would allow a given portion of water a longer time to part with its air. This would be advisable, where circumstances require the perpendicular height of the delivery tube to be less than given above. In case one has sufficient pressure to admit of running a pipe up into the upper part of the building, and from this point there is a descent of forty or more feet to the washing tank, it is probable that no upper reservoir would be required. It will need a descent of considerably more than thirty-three feet to entirely remove the atmospheric pressure, for the greatly distended bubbles of separated air in the upper part of the tube, occupy a good portion of its length. But there is no object in removing all the air, and we need not aim to do this. If the exit tube dips into the water in the washing tank, the separated air will be forced down and escape from it. This air cannot cause blisters. It is only the excess of dissolved air that is to be avoided. To ascertain if the apparatus is effective, or if a given sample of water is to be tested, the water can be drawn into a glass, and, should no bubbles form on its sides in the course of half an hour, it is evidence that no blisters will result from its use. Possibly longer, under certain conditions. At a time when blisters formed rapidly, it was noticed that the water immediately on being drawn from the pipes showed an effervescence, and a few minutes sufficed to line the interior surface of the vessel with bubbles, causing the glass to give out a dull sound when struck with the finger.

A quantity of prints which had been partly washed, and had a few blisters upon them, were dried, and the blisters carefully marked. They were again washed for twelve hours, in water that would have ruined prints under other circumstances, but no blisters were formed, with the exception of the reinflation of the old ones. This shows that the union between the paper and albumen had been re-established by drying. This theory is supported by the fact of the close adhesion of the albumen surface of a print to a glass or other surface when dried in contact with it. Advantage may be taken of this circumstance, since the final washings can be made with any water if this adhesion to the paper is secured. What effect this drying would have on the removal of the last traces of hyposulphite of soda afterwards, whether to shorten the whole time of washing or to lessen the chance of removing all substances liable to cause fading in the print, is a subject for investigation.

The water used in these experiments was drawn from a tank located in a colder room. This was occasionally filled from the city pipes. A glass of water dipped from the tank, and another drawn from the pipes as usual, showed no difference in the amount of separated air adhering to the sides after standing in a warm room.

Water-blisters form under collodion films on glass. It was suspected that blisters forming on a certain preparation of gum dry plates, when wet with water after exposure, were due to air contained in the water. This was not the case, for they were produced by the application of water entirely freed from air, and, on puncture, only liquid escaped from them. They must have been caused by osmose due to the sugar added to the gum. The explanation of blistering heretofore given, fully accounts for their formation.

"REMBRANDT EFFECTS," AND HOW TO PRODUCE THEM.

BY W. J. BAKER.

My attention was, about a year ago, first called to this style of picture, by some photographs of marbles, said to have been taken in London.

How such a lighting had been obtained, was, at that time, quite a puzzle. There seemed to be a glow of light all around the profile, that reminded one of a sacred halo, "such as limners paint." A little attention and study revealed the secret, and my initial experiment, on a plaster cast, was completely successful.

The idea then occurred, how nice this

would be with a living subject, and, at the same time apparent difficulties presented themselves. The cast or marble is one homogeneous complexion, but would not the varying tints of life oppose the even grading of the light and render the picture patchy? Would not dark hair be lost in the shadow behind, and fail to come out? These, and other doubts, could only be solved by experiment.

During an hour's leisure, a sitter was tried here and there under the light, reflecting screens placed in different situations, till when the right effect seemed obtained, the camera was focussed, and the negative of "Little Nell" taken at the first trial.

After this the method of Mr. Kurtz appeared in this Journal, and, at that time, my own was almost identical with that gentleman's.

Since then I have gradually been simplifying my working to the point which I will try to explain.

No part of the light is closed, but left as for an ordinary sitting. The subject is placed at about the usual point under the light, and well supported by a firm back- and head-rest—the "Wilson rest" answers perfectly.

But one reflector is used, placed close behind the sitter on a line at right angles to the line of principal light. The camera faces the light and must be shielded. For this purpose, the slide of the plate-holder, aided with the focussing cloth, is effectual.

The back-ground should be dark. Mine is black velvet, and leaves clear glass on the negative.

The vignetting may be done in the camera, or by a black cloth laid over the arm of a head-rest, placed in front of the lens.

The exposure is nearly twice the ordinary length. Developing as usual.

The light effect can be varied on the following principles, to produce a more or less *severe* "Rembrandt:" The sitter being posed, the light becomes sharper and more brilliant, when the camera gives an exact profile (situation first). By now moving the subject nearer the camera, and retreating with that, the shadows are deepened and the lights strengthened. Again, move the sitter ahead, this time on a line at right angles to the last line of motion. The chances are that this situation would not answer, except for very regular features and light hair.

To obtain a very soft, even illumination, go back to the first situation; now, instead of moving toward the camera, recede, and go out a little further under the light, then bring the camera round so as to include a little more than the exact profile.

Of course, the effect at any point can be varied by turning the face more to the light, or away from it, and by moving the camera so as to take more or less of a front view, and by varying the position of the reflecting screen.

The "Rembrandt" style gives the operator greater power over the light than any other method to alter expression by the shading, to conceal or reveal salient features; and while at first sight it would be deemed only suitable for "classic profiles," yet in practice there will be found very few physiognomies that cannot be made interesting in one or another of the many modifications of the effect.

I shall be very much gratified if the present example and description of the method by which it was obtained shall incite other photographers to take hold of this style, and thus render it popular through the country. The right management will be found with a little practice, and from the rapidity with which my collection has increased, it cannot be doubted but that customers will willingly pay the extra charge, demanded by the additional time and skill required to produce this class of work.

It will pay, if only as an advertisement, by the wonder it excites. Mumler's "spritool picturs" could not have inspired more amazement than did the photograph of "Little Nell" when first placed in my show-case, and now people daily ask the absurdest questions about them.

Many strenuously insist that they are taken by night. Others have a vague idea that somehow the light is concentrated in front, or that the light is let in through a very small hole, and most are quite unwilling to believe that there is no hocus-pocus about the process. The universal inquiry is: "What do you call those shadow-pictures?" Mothers seek engagements for the tender infant of days, for a "Rembrandt." Affectionate aunts usher in snub-nosed urchins, to be taken just as a surprise to papa, and one and all "wonder how he does that." But now the secret is out to you and your subscribers.

A gentle friend at my elbow has glanced over the above, and says it would be rude to close without thanking the young ladies who so kindly sat as subjects. It would be, certainly, and I hereby tender them my utmost gratitude, the more when I consider with what good sense they laid aside the pseudo delicacy, surely more affected than real, that prevents many of us from exhibiting, even in our own rooms, some of our best art, and, also, doubtless prevents you Mr. Editor from securing artistic studies for our favorite Journal.

PIN-HOLES.

BY M. CAREY LEA.

PIN-HOLES IN DRY PLATES—EXPLANATION OF THEIR PRODUCTION.

Although pin-holes are not as common with dry plates as with wet, they not unfrequently make their appearance, at least in some processes. As the same causes that lead to them in wet plates do not operate with the dry, the whole matter has led to much speculation and inquiry. In fact, as in almost all the dry processes in common use, the bath solution is washed off the plate, there is no opportunity for the production of crystals of iodo-nitrate of silver. Whence, then, does the trouble come?

In the collodio-bromide process which I have published, I have never seen pin-holes occur. But latterly, in a very wide series of experiments in which I have been engaged, I have occasionally seen them, and was thus led to study their cause, which I have made out without much difficulty. They are caused by crystallization of the so-called preservative solution upon the plate.

Microscopic examination of these pin-holes has shown me that they differ altogether with different preservatives, but with any one preservative, the form is regular and characteristic. With one preservative, for example, the pin-holes are elongated, and a microscope shows them to have the form of short prisms. In another case, they will seem to be round; the microscope will, perhaps, show these to be, in reality, corresponding with the forms of groups of small crystals. In some cases, what appeared to the eye to be circular, is found, under the microscope, to have numbers of small points around its circumference, proving that it was caused by a cluster of small crystals, overlapping everywhere, but, at the circumference, where the crystals separated, and each exhibited its own characteristic termination.

These crystals, of course, were formed during the drying of the plate. The preservatives did not all dry as intended, in the body of the film, but a part outside of it. The crystals, of course, stopped the light precisely as in the case of iodo-nitrate crystals with wet plates, so that the fixing solution removed the silver from the film covered by the crystal, and a transparent spot was produced.

The remedy must be always to check the tendency to crystallization, and this may be accomplished in three ways:

1. By combining with the sensitizer substances that check crystallization. Honey with tannin, for example. Sugar has also a tendency to prevent crystallization, and gum a very strong one.

2. By using less of the crystalline sensitizer. Tannin, for example, is a highly crystalline substance. In the form in which it reaches the photographer, it is a mass of delicate crystals. If pin-holes show themselves with tannin, the proportion used must be diminished. It does not, by any means follow, that because one operator uses a 20-grain tannin solution without being troubled with pin-holes, that another will have the same immunity. A great deal will depend upon the pyroxyline. The film and the crystalline substance represent two opposing forces. The latter strives to crystallize, which is opposed by the colloid character of the film. Which will obtain the mastery, will depend not only upon

the quantity of the crystalline substance, but upon the cotton and the quantity of it present. A thin collodion will leave much less pyroxyline on the plate, and the tendency to crystallize will be proportionately greater.

3. Another mode of avoiding pin-holes will be to avoid crystalline substances as preservatives. *Coffee*, for example, and *albumen*, do not tend to crystallize, but dry up to what is technically called a *varnish;* that is, a colloid mass perfectly homogeneous. Such preservatives cannot produce pin-holes; or, if pin-holes show themselves with these preservatives, they must depend upon some sort or other of bad manipulation, most probably dust settling on them during drying.

I have before spoken of the favorable action of sugar in keeping open the pores of dry plates; its tendency to prevent pin-holes must also be classed amongst its good qualities; both of these are shared by gum, a substance which is destined, for many reasons, to be of the greatest value to the worker in dry plates.

WET PLATES.

The subject of pin-holes in wet plates, has been so much better studied than the foregoing, that there is but little that need be said on the subject. *Want of filtration* is a not uncommon cause; the motes floating in the bath rest upon the film, shelter it from the light, are removed in washing, and the unexposed iodide and bromide of silver underneath are dissolved out in fixing, and leave a transparent spot in the lights or the half tones. I do not know whether it has been before remarked in print, although every photographer must have observed, how much more apt these transparent spots are to come in the sky than elsewhere. The reason is not difficult to find. The part of the plate that receives the foreground, is that which comes first out of the bath and remains uppermost in the draining, so that specks and motes naturally are carried by the descending fluid into the lower part of the plate, which is to receive the image of the sky.

Just in the same way operates the iodonitrate of silver, except that these crystals may not only be deposited on, but may form in the film.

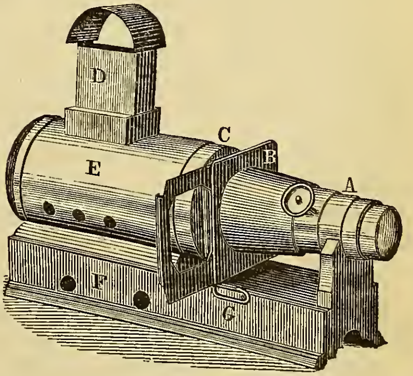
In this case, the preference which these crystals also show for the sky, admits of a different explanation.

The bath solution continues to settle down the plate after draining, and whilst the plate is in the slide. As evaporation goes on simultaneously, the solution on the lower part of the plate will always be more strongly charged with silver salts, and if the delay is long, the difference may be considerable. Of course, the opportunity for the formation of the iodo-nitrate crystals increases with the concentration of the fluid.

MARCY'S PHOTOGRAPHIC PROJECTOR.

The magic-lantern is destined to open up a branch of photography, which, in time, will become lucrative to all photographers who pay attention to its requirements. The day is coming when magic-lantern slides will be quite as much an article daily in demand as *cartes* of celebrities are now, and every enterprising photographer will pay attention to their production.

This day is being rapidly hastened by the invention of Mr. L. J. Marcy, of Newport, Rhode Island, of a photographic projector or magic lantern, which can be used in every household without trouble and with scarcely any expense.



The drawing above gives an exterior view of the article. A, is the front lens and tube, which may be any good one-quarter or one-third size portrait combination. B, is the holder for the slides, fastened in place by the spring, G, made to accommodate the various sizes used, and to hold two ordinary slides, so that one can be replaced by another very quickly. The condenser is at C. E, is the body of the lantern, made of iron, and contains the illuminating power, which is a lamp of peculiar construction, and fed by coal oil. D, is the chimney, and F the wooden base, to which the whole is secured. When supplied with oil, the lantern is always ready for use. It will give a circle of light of about six feet at a distance of ten feet, sharp and brilliant, and without wavering, for hours.

It is hardly necessary to go into a more detailed description of the article. We have witnessed several trials with it, and for small rooms, such as parlors, class-rooms, lecture-rooms, etc., it answers admirably.

In these days, educators are appreciating more and more the advantages of visible illustration. They can now discard their dingy and dusty maps and diagrams, covering the sides of the room and always troublesome to get at, and substitute a box of photographic slides in their place.

Paterfamilias can also make home happy by the aid of the family photographer and Mr. Marcy's Projector, and thus the day (and night) we predict, be brought about. With it and the stereoscope, entertainment without end may be secured, and the beloved art of photography greatly encouraged and prospered too.

Mr. Marcy's lantern, and all its appurtenances, with a box containing fifty slides, will go in a box, 6 × 12 × 18 inches, the whole weighing certainly not over twenty-five pounds.

It must become immensely popular, and, if photographers and dealers will realize the advantages it will be to their business, we think they will give it encouragement.

* * *

Do not fail to attend "the Exhibition and Meeting in Boston." You will see and hear and learn enough to make you work better for a year to come. Such an opportunity of seeing what your art can do will not be given you soon again. Go.

STEPPING-STONES OVER ROUGH PLACES.

II.

(Continued.)

BY GEO. H. FENNEMORE.

2. *How to Keep a Bath in Good Working Order for the Greatest Length of Time.*—As I said in the last number of the Journal, every photographer who values his reputation, should have at least two negative solutions, one at rest while the other is being worked. My plan is as follows: My negative solution is forty grains to the ounce in strength. I keep it up by adding every evening after work, sufficient solution, sixty grains strong, to make up for the amount of solution drawn from the bath during the day. The bath is always kept covered, to keep out dust, etc., and a strip of clean filtering-paper drawn over the surface of the solution, in the morning before work, to remove any scum or other matter that may have formed on the surface of the solution during the night. In this manner your bath may be kept clean, and of sufficient strength, without the trouble of filtering every day. But if your bath is small, I recommend filtering every night after work. My bath holds three gallons of solution, and this I use three or four days, according to the number of plates dipped therein. It is then taken out and set in the sunlight, until the other is ready to come out; the first is then taken in, filtered, and strengthened, if necessary, and takes the place of the one taken out. This routine is followed until they show signs of having excess of alcohol. In that state, before putting it in the light, it is evaporated to one-half its bulk, in a porcelain dish, the quantity made up with distilled water, and then set in the sunlight as before. When it shows signs of pin-holes, treat it as recommended in answer to question first. I never wait for a bath to show signs of exhaustion before taking it out, but feed it every day, and for three or four days' work give it as many days rest; therefore my bath seldom troubles me. In answer to question third, as to what developer I consider best, I answer emphatically, iron; and that, without any organic addition whatever, except acetic acid. I have tried al-

most everything that has been recommended in the shape of "sugars," gelatine, albumen, candy, etc., and find them very useful for some purposes, such as copying, making transparencies, etc.; but for portrait negatives I think nothing equals plain iron and acetic acid.

The strength of the developer should always be determined by the results you wish to get.

My developer varies from fifteen grains to sixty grains strong, but my average developer is thirty grains; this is used for subjects in general. But there are many subjects that require different treatment. For instance, a person with fair complexion, light hair, eyebrows, etc., should have a weak developer, because that increases contrast, while on the contrary a fair complexion, with black eyes and hair, should have a strong developer, because that reduces contrast. Experience alone can determine the kind of developer suitable for each individual, and every photographer should aim to so regulate his developer, that it will give him harmonious, at the same time the most brilliant results.

PHOTOGRAPHY FOR BEGINNERS.

BY PROFESSOR J. TOWLER, M.D.

IV.

HAVING now shown our students how to prepare a negative by development alone, it becomes our duty to give the requisite instructions for finishing a negative when the development fails to complete its task. This branch of the operation is called intensification. There are several independent processes, by means of which the shades and middle tones of a negative may be rendered more intense; that is, more opaque. But let me impress upon you quite distinctly here, that no amount of intensification can make amends for lack of exposure; if light itself has failed to make the proper physical change in the sensitive film, you must not expect, by any chemical appliances, to make compensation for the defective or imperfect work of the sun. In such a case, all that you can effect consists in increasing the contrast between light and shade, which, to unsqueamish tastes and non-artistic conceptions, is an improvement.

There are several methods of intensification, all of them more or less reliable; and these methods may be reduced to two classes: The first class contains all those chemical compositions, which, when applied to the developed picture, undergo decomposition and produce a deposit of pure silver or mixture of pure silver with an organic compound of this metal upon the weak shades and middle tones of the picture. The second class simply produces a decomposition, and changes the pure silver or the organic salt of silver in the shades into other forms and colors, which, though equally transparent to common light, is less so to the blue side of the spectrum which effects the photographic image. A third class of intensifiers might be enumerated, as emanating from the combination of the two preceding classes; the property or characteristic of this third class is to produce a deposit or aggregation of silver, or of silver salt as well as a change of color in the deposit.

It is not our intention to give all the processes of intensification at present known, but simply to present those which we have found, in practice, reliable.

INTENSIFICATION WITH NITRATE OF SILVER.

This method or process is decidedly the simplest and most allied to development; it is, in fact, a mere continuation of the development, especially when performed on the negative before it is fixed. Now, it is not a matter of indifference whether the negative be intensified before fixing or afterwards, and the mode of determining this point is the following: If the high lights in the negative are still quite transparent, and the middle tones as yet but imperfectly brought out, it is in some degree possible to develop more shade in both these parts by applying the intensifier as soon as the negative is washed but *not fixed.* This certainly can be effected, if light itself has already done its duty, for it frequently happens that the developer fails to effect any more change in the film, and the development, therefore, stops short, simply because there is no more silver solution in the developer to be decomposed; for you must know, that the iron salt does nothing more in the process of development than decompose the solution of nitrate of silver into pure silver, and the metalloids in combination with it; and when the silver is thus liberated in the state of the finest powder, it is attracted by the physical and undeveloped picture wherever there are any shades to be filled up. If this be the case, the further addition of a solution of nitrate of silver to the developer will cause the development to continue, and to continue so long as there is a silver solution to be decomposed or an iron salt to decompose it. In practice we have two methods of continuing the development, or of intensifying by this process.

FIRST METHOD.

Wash the film thoroughly after the picture has been developed as far as it can be, and then pour upon it a sufficient quantity of the following solution as to cover it completely, and allow the solution to drain off again into the vial.

Nitrate of Silver, . .	30 grains.
Distilled, or Rain Water,	2 ounces.
Nitric Acid, . . .	2 minims.

The solution is kept in stock for use.

The developer is now poured upon the plate, when it will be found that the shades soon begin to thicken, and new shades begin to appear in parts, where before the film was quite transparent. In this way you can make the negative as intense as you like, but great caution is required in not continuing the operation too long, otherwise, the opacity of the shades will be too great, and the resulting picture will be quite bleached in the lights and devoid of all middle tone. There is always danger of producing a granular deposit on the shades by this method, unless the silver solution be dilute, or the plate be previously well drained. The addition of the few drops of nitric acid tends to prevent the granulation by controlling the rapidity of action; and, where this tendency exists to a great extent, more acid can be added to the silver solution than that given in the formula.

SECOND METHOD.

The second method of intensifying, is simpler than the preceding, for it is not necessary to wash the film before the intensifier is poured upon it. Drain off all excess of the developer, which has already done all that it can effect; then, to a proper quantity of fresh developer in a *perfectly* clean vial, add two drops of the acid silver solution for each drachm of the developer, shake the mixture quickly, and then pour it upon the drained film. As before, the shades will gradually become more intense, and even new shades will appear, if the previous development had been imperfect. By proper management, both these methods are quite reliable, and are, at the same time, most reasonable and legitimate modes of intensification, being, as I have already remarked, merely a sort of continuation of the development; and the negatives, by these processes of intensification, are clean and neat, the shades being composed of a pearly-gray deposit of pure silver.

If, on examination of the developed plate in the first instance, it appears that the development is complete, no intensification is necessary. In this case the plate is washed and fixed. But in many instances you will find, until your experience is complete, that, after fixation, the opacity of the shades is not as great as you would like, although, in other respects, the negative is very good and respectable. After fixation it is impossible to bring out any more detail, but you can very easily increase the opacity of the shades, and thereby make a better printing negative. In order to effect this required intensity, you can proceed by either of the two methods just given, or by those which follow:

INTENSIFICATION WITH SULPHIDE OF POTASSIUM.

Dissolve a lump of sulphide of potassium (liver of sulphur), of the size of an ordinary horse-chestnut, in a pint of rain-water, and keep it well corked for future use. As soon as the plate has been developed, washed, and fixed, pour a sufficient quantity of the sulphur solution upon the film, and keep it in motion so as to equalize its action. The color of the shades soon changes from the pearly-gray of pure silver to the inky black of sulphide of silver. The negative looks much more intense after a while than it did before the intensifier was applied; but the looks are very deceptive, judging, as you will be apt to do, from the mere change of color. Nevertheless, the shades really become more opaque by this application, and good negatives can be easily and effectually prepared by this process of intensification. It has been long supposed that the picture, being intensified by a sulphur compound, would not be permanent; that is, would not resist the changes of time and of the atmosphere. This idea is pretty much exploded, from the fact that a negative so intensified is as firmly protected against the ravages of time and the atmosphere as a negative intensified by any other process. The only objection to this process, is the unpleasant odor arising from the alkaline sulphide employed in the intensification. The sulphide of sodium, of barium, or of ammonium may be used with the same efficacy as that of potassium. Whichever is used, you must be careful to keep it well corked up; otherwise, it undergoes decomposition, and a carbonate or sulphate of the respective base is formed.

(To be continued.)

A MANUAL OF PHOTOGRAPHY:

Intended as a Text-Book for Beginners, and a Book of Reference for Advanced Photographers. By M. Carey Lea. (Philadelphia, Benerman & Wilson.)

There are two facts which strike us in reading this book, the mention of which in our estimation involves high praise. First, the book has been written, not compiled; it is the result of the author's own knowledge and experience, not simply the product of gleanings from various sources. Second, whilst it is comprehensive and complete, its completeness consists in the presence of thoroughly trustworthy instruction and information regarding all the ordinary operations in photography, and not in the accumulation of formulæ and multiplicity of recipes, by which youthful students, at least, are bewildered instead of helped. The work is, in fact, a manual, not an encyclopædia. It is perfect as a text-book for beginners; and not less so as a reference-book for advanced students, if they desire to refer to lucid statements of safe principles, or to ascertain, without the need of special experiment, which out of many existing formulæ it is safe to use. It will be seen from these qualities that Mr. Lea has produced for photographers a readable book, full of well-stated instruction, instead of a book to stand upon their shelves only for occasional reference.

From what we have said it will have been gleaned that this is eminently a practical book; it is, moreover, clear and perspicuous in style, and excellent in arrangement. The first part is devoted to clear general instructions for a beginner as to the selection of materials and the operations in photography; the concluding chapter in this part consisting of eight-and-twenty rules or maxims, which many experienced photographers may ponder with profit. The second part is devoted to a brief theoretical statement of optical laws in relation to photography, and a description of photographic lenses and their qualities. The third part consists of twenty-two chapters, in which the practice of photography with dry and wet processes is fully described; special processes, such as micro-photography, carbon processes, modes of treating residues, photo-lithographic processes, iron processes, etc., etc., being included in this part of the book. The chapter on Failures and their Causes, given in this part, will be found very valuable for reference. The fourth part is devoted to theoretical considerations; and the fifth part, besides a chapter on photography in its relation to health, contains some capital instruction for the mode of conducting chemical manipulations, which will be of much value to experimental photographers who have not had a chemical training. We purpose, on a future occasion, to give some extracts from the work, which our space will not permit on the present occasion.—G. Wharton Simpson, A.M., *in Photo. News.*

We are sure that all who fortunately possess Mr. Lea's book can indorse what Mr. Simpson has said. We should like to have all our readers get it.—Ed.

Uniformity in the Flanges of Photographic Objectives.

BY M. CAREY LEA.

I WISH to propose to the makers of photographic objectives, a great and much-needed reform: one that has been completely and satisfactorily accomplished in the manufacture of microscopic objectives, and which should at once be extended to Photography.

With the continued efforts and eager rivalry of opticians, not a year now passes without the introduction of one or more new lenses. And, as photographers want to have the best instruments they can find these new lenses are extensively purchased. It follows that a great accumulation of objective flanges takes place, and of camera fronts to carry them.

One English maker, Mr. Dallmeyer, has adopted the very convenient system of using but a very small number of flanges, so that a great many different lenses by him will screw into one and the same flange. For example: the ten-inch wide-angle view, the twelve-inch triplet, the fourteen-inch rapid rectilinear—all these I find to screw into the same flange, as also does the eight-and-a half-inch wide-angle view, and probably various other lenses. This is a good example and worthy of an extended imitation. I do not mean merely to suggest that each maker should make his lenses of various sorts to screw into the same flange, but that certain gauges should be adopted all the world over. *This has already been done* with microscopic objectives. If one owns an American microscope, and purchases a new objective from London, or Munich, or Vienna, or Paris, as a matter of course, it screws at once into its place: the gauge has been fixed, and all makers conform to it. If any one undertook to disregard the custom, his lenses would thereby be discredited.

In photography it would not be possible to have one only gauge. One gauge would be proper for short-focus lenses and stereos up to six or seven inches focal length; another would be suitable for all lenses of medium sizes, such as would be used for views on 4-4 and 8 x 10 plates; and then a larger size for extra large tubes. The convenience of this arrangement would be very great. In working, for example, with 4-4 and 8 x 10 plates, one camera front and one flange only would be necessary, no matter how many lenses be possessed by the photographer. I do not think that opticians appreciate the annoyance of the present state of things. As it is impossible to be screwing on and off of flanges, a different camera front must be kept for every lens in use, and these must be always at hand. If, in going out to take views, it is intended to use several lenses of different focal lengths (and one who carries but one lens or two is almost certain to find unexpected and particular need for one that has been left at home), then a camera front must be taken for each lens. The lenses themselves are heavy enough, and troublesome enough to carry, without the additional weight and trouble of a front besides.

As Dallmeyer has set the example of uniformity in this respect, his gauges might be adopted. This is, however, less important than that some one series of dimension should become universal. It is to be hoped that no jealousies of makers will interfere with this so much needed reform.

"SPIRIT PHOTOGRAPHS"—ANOTHER PLAN.

THE trial in the case of the so-called spiritual photographic swindle in New York City, is creating a great excitement through the whole country. I have read the testimony of the witnesses thus far, and have not yet in all the processes given for taking ghosts, seen the one which I consider the one practised by the defendant, although the processes given will undoubtedly produce ghosts as stated I have been in the habit of taking ghost pictures for my own amusement, by a process in which the deception is complete. It is this:

1st. Select a transparent and colorless plate of glass, containing considerable alkali in its composition.

2d. Place this plate in a rather strong solution of caustic potassa for a few hours.

3d. Clean the plate perfectly with water and rottenstone.

4th. Select an adhesive collodion, and take a negative in the ordinary way on this plate of some one whom you wish to appear as a ghost. In finishing, dry it very thoroughly, using sufficient heat to make it quite hot. Omit varnishing. (The person to appear as the ghost, may be dressed in a shroud or in ordinary apparel, and may be taken in full or in part by proper vignetting appliances.)

5th. Remove this negative picture by scouring with rottenstone and water until the plate is *apparently* perfectly clean, and store away for future use, after marking the side on which the picture has been taken.

6th. Take a picture (yourself, or hand this plate over to any photographer, and allow him to take a picture) in the ordinary way, of any one you please, on the side thus prepared; on development the last picture will come out very distinct, while the former will appear as the ghost.

The theory of this process is this:

The kind of glass selected is attacked and etched very slightly by the potassa solution, so that in making the first picture (ghost) the coating of collodion and iodide of silver, after drying, adheres with such tenacity to the granular surface of the plate that no ordinary amount of scouring will completely remove the silver compound, although the plate appears to be perfectly clean and transparent. It is this invisible coating that gives the ghost, while the collodion and silver last applied give the ordinary picture. Old plates steeped in strong nitric acid for a few hours, so as to dissolve away every trace of the former silver coating, fail to give ghosts.

Yours, &c.,
CHAS. WOODWARD, M.D.

PENN YAN, YATES COUNTY, N. Y.

MRS. HARDINGE'S PEARLETTA PICTURES.

WE have before us several beautiful examples of Mrs. Hardinge's pictures, to which we called attention in our last.

One of the advantages of Mrs. Hardinge's process is, that at little cost fine colored pictures may be produced.

Her method is to place upon an ordinary photographic print, on plain or albumen paper, a translucent film of white wax, pressed into contact with the print by hard rolling. The outlines of the print show through this film, and the hard effects, if any, are softened and subdued. The surface is adapted to all kinds of coloring, stippling, hatching, etc., quite as much so as ground porcelain glass, and much cheaper.

The back-ground effects may be varied in multitudinous ways, to the great advantage of the picture, when managed by a tasteful and skilful artist.

Mrs. Hardinge will be glad to communicate with those who desire specimens and further information on the subject, and will, as all enterprising photographers should, have examples of her work at the great National Exhibition.

Camera for Taking Glass Positives and Negatives Not Laterally Inverted.

BY PROF. JOHN TOWLER, M.D.

A CAMERA to take photographs without inverting them laterally, that is to say, without making right left and left right, is a necessity.

How often is it necessary to get a photograph of a building, a public edifice, or a landscape on the spot, that is, as quickly as you can take a tintype? On that account, with the ordinary camera, such a picture would be inverted and unsalable. It is equally necessary to be supplied with a camera to take negatives without inversion for the preparation of carbon prints by single transfer (Blair's process).

Now I will show you how to prepare such a camera at the least possible expense, trouble, and change.

I suppose, of course, you have an extra camera with a complete set of plate-holders, from a four-fourth downwards to the smallest size required for given work, which camera can be spared and appropriated for the purpose in question. This being the case, unscrew the spring on the back lid or door, and remove it entirely; then placing the largest shield or plate-holder in its place, but wrong-side up, close the door, and, whilst in this position, screw the shield firmly and evenly fast to the door, so that, when the latter is again opened, it carries the plate-holder with it. Cut out, now, two pieces of sheet-brass, an inch long and three-sixteenths of an inch wide, bore a hole an eighth of an inch from one end, and bend the brass into the shape of an italic *S*; finally, cover the brass with India-rubber tubing as far as the hole at one end. Each of these pieces of brass, so prepared, is screwed at diagonal corners on the surface of the plate-holder, to serve as clamps for holding the plates on their respective glass corners, or to clamp the next-sized plate-holder in its place. Each plate-holder is furnished with brass springs, alternately at opposite diagonal corners, so as not to interfere with those on the preceding or succeeding plate-holders. The object aimed at by covering the brass springs with India-rubber tubing, is to prevent the decomposition of the nitrate of silver solution by contact with the brass.

The next thing to be done, is to adjust the ground-glass in its new place by reason of the inversion of the plate-holders themselves. Take out the ground-glass and select a piece of flat glass of exactly the same thickness as the ground-glass, and of a size suitable for the largest plate-shield. Place the latter in its position in this shield, and clamp it there. Now, with two flat rulers, ascertain the distance of the front of the glass from the surface of the front edges of the body of the plate-holder; this distance must be obtained with great accuracy.

This distance having been obtained, you next proceed to the adjustment of the ground-glass, which is inserted in its place, but with the ground surface looking in a direction opposite to that before, that is, looking from the lens. With the two flat rulers, before used, and with the distance just obtained, you ascertain the position of the ground-glass, and then you build up accordingly with small slips of card-board or of wood. This being done, the ground-glass is tacked in its place, and your object is accomplished.

You will observe, from the nature of the changes made, that the collodion film and the ground surface of the glass will stand at the same distance from the lens, a circumstance which is absolutely necessary; also, that the picture will be impressed on the surface of the collodion next to the glass, and not, as is otherwise the case, on the surface away from the glass. This very circumstance gives rise to a little trouble, unless you take measures to prevent it. The trouble is this: even the cleanest surface of glass is apt to institute a reduction or depost of pure silver the moment the developer (protosulphate of iron) comes in contact with it, and thus, what is called fogging, commences between the collodion and the glass. This is obviated by first cleaning the glass thoroughly and then coating with a dilute solution of albumen.

Secondly, the exposure must be slightly longer than when the picture is taken on the outer surface of the collodion, and when the rays of light do not have to traverse the glass that holds the collodion.

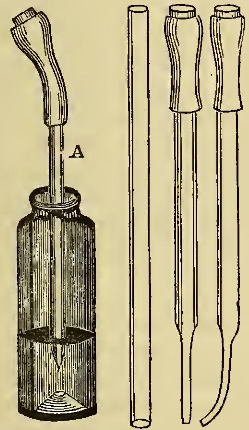
A transparent positive or ambrotype, taken by means of this camera, is not laterally inverted when the collodion film is turned towards the beholder, and if the picture is mounted on a piece of black velvet, you have a splendid representation of the object photographed; naturally, the film must be protected, either by means of another glass in front or by a coat of crystal varnish.

It is surprising how very few practise this sort of photography, considering that there is nothing new about it, and that its advantages are really so marked. I am satisfied that any photographer might take out his photographic tent and a dozen handsome frames, and dispose of as many transparent positives of farmers' horses heads on glass, handsomely done up on the spot, in one and every suitable day, and thus realize a *handsome* profit for his labor. People are apt to change their minds between the taking of the negative and the print, and sometimes forget to call for the latter if the former was not prepaid; whereas, by this process, they see the objects before them prepared on the spot, full of vitality, faithful in every point, they are delighted with it, and pay for it without a grudge, and hang it up in the place of honor in their parlors.

A PIPETTE FOR PHOTOGRAPHIC USE.

The photographer is almost daily wanting to measure a few drops of acid, silver solution, or some other liquid. Dropping such from a bottle by the inexperienced, is sometimes difficult and often dangerous.

The little pipette we describe below, will answer the purpose admirably, and by its use the photographer can take from any solution desired, and, drop by drop, measure it at will, just as easily as the farmer boy will take grains of corn from his sack and drop them in the newly-ploughed furrows in *quantum suf.*



They are five or six inches in length, and about three-eighths of an inch in diameter. The photographer can make them for himself, by procuring a glass tube ten or twelve inches long and of the proper size. Heat it in the middle by gradually lowering it into the flame of a spirit-lamp, keeping it constantly turning so as not to expand the glass unevenly, thereby causing it to break. When it has become very soft and pliable, it must be pulled suddenly apart, thus causing the separated parts to be drawn out into very fine points; break off one of these points, and you will have a tube with a very fine aperture. Procure a piece of elastic rubber tube two or three inches long, having an inside diameter a little smaller than the outside diameter of the glass tube, close one end with a cork and slip the other end on to the glass tube, and your instrument is complete. If you want a larger hole in the end, you have only to break off more of the point. It will be found very convenient to have at hand three or four of these instruments of different sized holes, and with the ends bent, as seen in the engraving. Any roughness of the points can be removed by holding them in the edge of the flame of a lamp.

The proper method of using the pipette is to press together the rubber tube with the thumb and finger between the cork and the end of the glass. Put the point into the liquid as seen at A, take the pressure from off the rubber and it will cause the liquid to instantly rush into the tube. Of course, by again applying pressure to the rubber, the contents of the pipette will be discharged. In this way any solution can be delicately measured. The pipette can also be used as a syringe if necessary. We are indebted for the idea to Mr. D. Edson Smith, one of our subscribers at Oneida Community, New York.

VALVE TAP FOR DARK TENT.

In an interview we recently had with a very ingenious friend of ours, Mr. T. Wiseman, he showed us a "dodge" which well deserves attention.

Fig. 1.

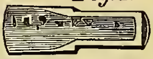


Fig. 2.

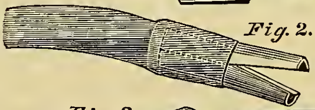
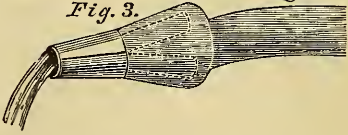


Fig. 3.



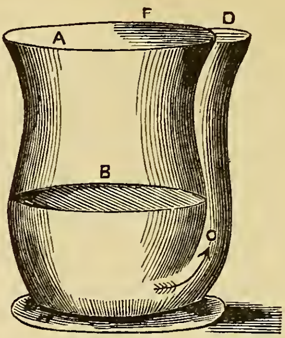
The preceding diagrams will explain it. Figs. 1 and 2 represent pieces of wood hollowed out inside and rounded outside, made to fit together. Fig. 3 shows them fitted together in the India-rubber tube from a water-tank. By pressing the wood outside the tube, between the finger and thumb, the valve opens, and a thin stream of water, suitable for washing the plate, flows steadily, and ceases when the pressure is removed. With a penknife and a piece of wood, such a valve might be roughly constructed with the greatest ease.—*Ill'd Phot.*

A New Developing Cup for the Gelatino-Developer—Collodion Filter.

BY DAVID DUNCAN.

All photographers, I presume, who have used the gelatino-iron developer, have been troubled with the peculiar muddiness and stringy deposit which forms after standing a day or two, and the consequent difficulty of filtering, with ordinary filtering-paper, the aforesaid developer for use. I generally filter with a piece of flannel, which does very well. But gelatine in the developer does not suit all classes of subjects, although some operators may think so; nor is it suitable to use upon all occasions. There is nothing like the old-fashioned plain iron developer, when everything else is working satisfactorily. Gelatine in the developer is useful at times; it is undoubtedly a valuable acquisition to the "dark-room" for the "hour of need." Therefore, after developing solution containing it has been made up some time, whether previously filtered or not, the stringy substance begins to form, which coming in contact with the plate, is very difficult to remove, and often damages a picture. I am not presenting a new trouble; others have complained of it. It is not commonly met with when the gelatine has been treated with sulphuric acid, or when there is plenty of sugar in the developer. Generally both the sulphuric acid and the sugar are abandoned, as they very much retard the developing action, and increase the intensity. Such being the case, the following idea for a developing cup may be useful to those who keep the gelatino-developer in a dark-room:

A, opening to pour in the developer, which, filtering through perforated partition B, passes, when used, through opening of arrow, O, out of mouth, D. F, is a covering to prevent the unfiltered solution from overflowing when tilted by the operator. It might be difficult and expensive to have them made of porcelain or glass. Could they not be made of gutta percha? Of course when the photographer has predetermined to use gelatine in the developer, he will have some ready filtered; but when some, after standing, is required speedily, a vessel like the above would surely prevent a plate from being injured. At any rate, such a thing would be of service to the amateur.



COLLODION FILTER.

An ordinary kerosene-lamp chimney with a little cotton-wool inserted in the narrow end answers the purpose admirably likewise for filtering gelatine solutions; a piece of glass can be placed on the other end when in use, to avoid evaporation, and dust. A lamp chimney has been before recommended for the purpose, but with an additional arrangement, rather complicated, compared with the above suggestion.

PRACTICAL NOTES ON PHOTOGRAPHIC SUBJECTS.

BY G. WHARTON SIMPSON, M.A.

Fuming Collodio-Chloride Paper.—I have recently received some very charming collodio-chloride prints from my friend, M. de Constant, of Lausanne. They possess an unusual depth and mellowness of tone, of the character of a rich mezzotint black. These are obtained on collodio-chloride paper, prepared by himself, and then submitted, before printing, to the fumes of ammonia. The ammonia, he finds, imparts vigor and richness, without any loss of softness, and also increases the sensitiveness of the paper.

As M. de Constant has given an unusual amount of attention to the various modes of silver-printing, and is very successful as an experimentalist, his results and opinions always possess considerable interest for me. In speaking of these results, I cannot do better than give your readers some condensed extracts from the communication with which he favored me, when sending the specimens to which I have referred. He says:

"Simpsontype" (the term by which M. Constant is pleased to distinguish my process) "is a process to which I have devoted considerable study, and I believe, therefore, that I am in a position to give a few useful directions in regard to it. In the first place, as regards the support for the collodio-chloride, it is my rule to reject all enamelled and glazed papers, in consequence of the difficulty of their application to the purpose, and the inartistic effect of the results produced by their means. A stout paper, prepared with arrowroot of a very superior quality, and perfectly impermeable (a very important point), such as that supplied by the firm of Liesegang & Co., is what I prefer to use. At the same time, for those who prefer to prepare their own paper, the formula employed by MM. Geymet and Alker, of Paris, may be used, which is as follows:

"Water, . .	1000 cub. centimetres.
Gelatine, . .	5 grammes.
Arrowroot, . .	10 "
Sugar-candy, .	20 "

"The bath is used warm, and the paper floated thereon.

"Of all the formulæ for collodion, employed by myself, I prefer that given in the first instance by the inventor, Mr. Simpson. But a subject of great importance in regard to the process, and one which does not seem to have been sufficiently studied, is the influence of the chloride upon the color of the print. Thus I find that the chloride of magnesium imparts a grayish tint, chloride of calcium a brown, strontium a very brilliant sepia, cadmium violet-black, and lithium a rose-colored tint. Certain toning baths will modify these colors, but they are all produced at first with these tints, and thus they may be preserved, if an alkaline toning bath is employed, as I invariably use (acetate of lime and chalk), taking care that the solution is always old and weak. By means of these reactions, therefore, nothing is easier than to compose any desirable tint in the same way as the pigments are mixed in the carbon printing process. Thus by mixing two parts of collodio-chloride of silver and cadmium with one part of lithium (a mixture which may be made without inconvenience), a charming violet-purple tint is invariably produced, such as is generally seen in fine carbon productions.

"For the purpose of giving vigor to the pictures, and thus to correct the only defect of which we can reproach them, I have found that fumigation with ammoniacal vapor may be used with marvellous success. This operation not only imparts vigor to the picture, but gives it great depth of tone and relief. The result is, in fact, so decisive, that in placing together, in a line, three prints, of which one has not been subjected to the vapor, while the others have felt its influence, but in different degrees, it is impossible to believe that the three photographs have all been produced from the same negative. A fumigation of half an hour has given me the maximum amount of vigor. The printing in the frame is very rapid, and a bronzed surface readily produced; but the print must not be allowed to go as far as that, although it is necessary to let the impression go as deeply as possible. By following exactly these directions, which it gives me great pleasure to communicate, it is easy to prepare pictures which, on account of their extreme softness and matt appearance, as also their slightly glossy surface, rival the finest carbon prints, and even surpass them in the beauty of the whites, which are always somewhat marred when a trace of gelatine is present. Collodio-chloride prints, furnished by these means, appear to me to be sufficiently brilliant and stable, but, if there be any doubts upon the subject, it is practicable, without further preparation, to coat them, by means of a brush, with a light varnish (as, for instance, Sœhnee's positive varnish), which renders the surface free from any chance of injury."

Influence of Fumed Paper on the Negative.—The mention of M. de Constant's experiments, brings me to another question, which to American photographers, amongst whom fuming is common, is of great importance, and upon which their experience ought to possess weight. Fuming has never become extensively adopted in this country, and therefore we have but little evidence upon the subject to which I refer, and which is embodied in a simple question: Does fumed paper affect the varnish of the negative? This question has been raised by M. Chardon, who, at the French Photographic Society, alleged that, in using the carbonate of silver paper, which requires to be fumed with ammonia, a negative had been ruined, the whole film having assumed a yellow tint, rendering further printing impossible. M. Schæffner, a member of the firm which recently introduced the carbonate of silver paper, pointed out, very naturally, that the fuming was not peculiar to carbonate of silver paper, and added that, in a somewhat lengthened experience, he had not met with an instance of injury to the negative through the use of fumed paper.

M. Davanne, by way of explanation, stated that possibly M. Chardon had used a varnish containing gum benzoin, which was readily acted upon by ammonia. Shellac varnish, however, might, he said, be safely used, as films treated with it might be left in contact with liquid ammonia for eight hours, without becoming injured.

So far, these replies are comforting to those who use fumed paper; but not entirely so. So far as M. Schæffner is concerned, it is perfectly true that the carbonate of silver paper is not more noxious than other fumed paper, except in so far as it requires a more ample use of ammonia. But the question to be solved is, does the fumed paper, in shape, act injuriously upon the varnished surface of the negative? This is a question which can only be satisfactorily answered by the photographic printer, who has used the fuming process extensively in his commercial operations. Experimental operations would scarcely determine the question. In my own experience I have never met with any evil result; but I must confess that, theoretically, the case seems strongly in favor of the position of M. Chardon, and that the answer of M. Davanne, does not quite dispose of the case. Most of the resins, if not all, are soluble in strong alkaline solutions, and hence it might not unreasonably be assumed that alkaline fumes would be, in their degree, active upon a varnished surface. The knowledge, even that the resin benzoin is most readily acted upon by ammonia, does not quite meet the case, as the photographer generally uses a varnish, of the composition of which, he knows nothing. It may not contain benzoin, but it also may, and therefore with ammonia fuming, he incurs a risk. It may be further stated, that benzoin is a favorite resin with many manufacturers of photographic varnish. It is very soluble, very tough, very hard, and does not readily become tacky under the heat of the sun. It is sometimes used alone, and frequently added to varnish, in conjunction with other harder and more friable resins, in order to give toughness to the film. But I fear, further, that even the consolation offered by M. Davanne, as to the resistance furnished by shellac to the action of ammonia, is scarcely to be absolutely relied upon. M. Davanne is an able chemist, and a trustworthy authority, and, in so far as shellac resists the action of ammonia better than most of the resins, his statement is doubtless correct. Shellac, however, is like other resins, acted upon by ammonia, and dissolved by it. Indeed, in Mr. Johnson's recent modifications of the carbon process (described in my last "Notes"), the cement used for single transfer, is shellac dissolved in ammonia. This forms a capital cement, absolutely impervious to moisture, when dry. But, if liquid ammonia will dissolve shellac, it may readily be believed that prolonged or constant contact with the fumes of ammonia, may soften, and possibly decompose the strongest and most perfect varnish.

This is a subject which has not hitherto received much attention, and is one upon which American photographers can afford the most practical and trustworthy information.

Comparative Experiments with Dry Plates.—I recently had the pleasure of being present at an interesting competitive trial of dry plates, organized by Mr. R. Manners Gordon, and some other distinguished dry-plate men. The processes tested were the gum-gallic processes of Mr. Gordon, which I have before described in your pages; the collodio-bromide process, as worked by the Liverpool Dry-Plate Company; the collodio-albumen process, the plates having had a final wash of gallic acid, which confers almost illimitable keeping qualities; a process recently worked out by Mr. England, the details of which he does not wish to be published until he has tested it further; and the rapid process of Dr. Hill Norris. This last is a secret process, by which plates are commercially prepared for sale. Mr. England's process will only remain a secret until he has tested it fairly, and ascertained to his own satisfaction that it is trustworthy. I shall then be able to place the details before your readers.

A fine April day was chosen for the tournament of the processes, and the exposures commenced at midday, and were all made between twelve and one o'clock. The subject was a most trying one; a light drab-colored house, in full sunshine, with portions covered with ivy, in deep shade. It would have been difficult to find anything with more difficult contrasts, to render harmoniously. At the outset, a trial-plate, with wet collodion, in good condition, was taken to form a standard of comparison. A bi-lens camera, with a couple of Dallmeyer's wide-angle rectilinear lenses, were employed. The wet plate received an exposure of ten seconds, which, on development, was pronounced not quite sufficient. From three to five seconds more would have produced an excellent negative. It served, however, to suggest a standard time. The plates were then exposed for the different periods, which former experience suggested necessary for two, three, or four times as long as a wet plate should require, fifteen seconds being regarded as the standard.

1. A gum-gallic plate, prepared by Mr. Gordon. This received thirty seconds, or twice the wet plate standard.

2. One of Dr. Hill Norris's extra-sensitive plates, stated to be equal to wet collodion. This received fifteen seconds, being described as equal in sensitiveness to a wet plate.

3. A gum-gallic plate, prepared by Mr. Whiting. One-half was exposed twenty-five seconds, the other half, one minute.

4. A plate prepared by Mr. England, by a process at present not published; thirty seconds.

5. A collodio-albumen plate, which had received a final wash of gallic acid solution. This was exposed one minute, or four times the wet plate standard.

6. A Liverpool commercial collodio-bromide plate, exposed thirty seconds, and another exposed a minute, being twice and four times the standard.

Several very good negatives were obtained from these exposures. In point of rapidity the Hill Norris sensitive plate took the first position. Developed with iron and silver according to instructions, it rapidly came out, and yielded a fine detailed, soft, and bright negative; some slight defects in the film, which might have been avoided by more careful manipulation in preparing the plate, excepted, the negative might have been pronounced perfect. It had the peculiar bloom, and greenish tint by reflected light, and slight ruby tint by transmitted light, which used to characterize a pyrogallic negative with everything in good condition.

Mr. Gordon has generally found that an exposure of twice as long as a wet-plate, gave perfect results with the gum-gallic plates. His plate, which had received this ratio of exposure, was then developed with gelatino-iron and silver, and intensified with the same materials used in modified proportions, gave an exceedingly perfect negative, which it would be very difficult indeed to distinguish from one taken on wet collodion. Mr. Whiting's gum-gallic plate was developed with iron and silver, each half being treated in development in precisely the same manner, notwithstanding the difference in exposure. In the finished result the difference between the two halves was singularly slight, and when one was treated with a little pyro and silver, the difference was scarcely appreciable, both negatives being exceedingly good.

Mr. England's plate, with twice the exposure of a wet plate, yielded a very fine negative. It was developed with iron and silver, and intensified with pyro and silver. It was somewhat slower than some of the plates in development, but not decidedly slow. In result it was exceedingly perfect, very brilliant and clear, and, at the same time, delicate and soft.

The collodio-bromide plates scarcely received justice in development, and were not successful. Their qualities cannot fairly be considered as in the competition, at least they cannot be considered as decided by this competition.

The collodio-albumen plate proved to be a little underexposed, but promised very fine qualities. It received alkaline development. It is worthy of remark that the collodio-albumen plate, as a rule, is not well suited to alkaline development, being apt to blister and fog when treated with alkaline solutions; but when it has received a final wash of gallic acid, this form of development may be employed without risk or difficulty, and in such case a much shorter exposure may be given than is necessary with the ordinary acid pyro development. Here then is found a series of compensations. Collodio-albumen plates, as usually prepared, do not keep good more than two or three weeks; a final wash of gallic acid enables them to be kept without deterioration almost indefinitely, certainly for twelve months; but the gallic acid makes them much less sensitive, and of course prolongs the exposure. The use of alkaline development permits shorter exposure, but with the plate prepared as usual it causes fog. The final wash of gallic acid checks fog and permits alkaline development. The use, therefore, of the final wash of gallic acid and of alkaline development permit, together, ordinary exposures, so that keeping qualities are so secured without any loss of sensitiveness.

After all, judging from this trial, nothing exceeds, and few things equal the gum process. It is very simple; the plates keep perfectly for months; the exposure is not more than double that of wet plates, and the negatives are not inferior to those obtained by the wet process. The rapid plate of Dr. Hill Norris was the most sensitive, but as that is prepared by a secret commercial process, and the keeping qualities are limited, the circumstance is not of vital importance to American photographers. Mr. Gordon's gum plates, I should have added, had received a preliminary coating of a one-grain solution of India-rubber in kerosolene.

EXAMINATION OF OLD AND NEW PROCESSES.

BY PROF. JOHN TOWLER, M.D.

"WEIGH THEM IN THE BALANCE."

II.

THE next process to be examined, is "The Carbon Process by Single Transfer;" by William Blair.

For this process you require a negative laterally inverted, otherwise, the prints will be, like so many tintypes, laterally inverted. In portraiture this does not make much difference, but in landscape photography it would be a great disadvantage if it could not be remedied. But the remedy is quite simple. Prepare a plate-holder which will allow you to turn the collodion plate from the lens, and not towards it. Focus, expose, and develop as usual. A negative, so prepared, will be what you require for this simple carbon process. But, as I just remarked, one of your ordinary portrait negatives will do for the experiment. The carbon tissue can be had of the stockdealer. You want, besides, an ounce of bichromate of potassa. This is all that you need in this beautiful process, that is, all that you need in addition to what you already possess.

SENSITIZING SOLUTION.

Bichromate of Potassa, . . .	1 drachm.
Rain-Water, ...	3 ounces.

Dissolve and filter *always* before use. This solution can be used repeatedly, but it is necessary to keep all dust out of it. Cut out a piece of the carbon tissue, of the size of the picture to be printed, and immerse it in the sensitizing solution. This operation must be performed in the dark-room. Take care that the tissue is kept wholly in the solution. In about five minutes take the tissue out, let it drain, and then hang it up to dry. When it is dry, you may place it between the leaves of a book until it is wanted.

The tissue, thus sensitized, is placed on the negative in the usual way, and exposed to light; but, however long it is exposed, no picture is visible, and, on this account, it is necessary to make a few experiments with your negatives before you can know approximately what amount of exposure will be necessary. I expose the tissue under my negatives to a bright sunlight (May), just one minute, and find this length of exposure quite sufficient. Of course, if the light is diffused, a much longer time will be required.

The next step to be performed, is to cause the exposed tissue to adhere, face downwards (that is, the exposed surface), to a *piece of albumenized paper.* This is Blair's novelty in the carbon process, and a happy one. You may take your ordinary albumen paper for experimenting with, but it is much better to albumenize plain (unsalted) paper yourself, until the stockdealers prepare it for this special purpose; and when they do prepare it, let the albumen be undiluted. Mr. Blair recommends you to brush over the albumen surface with methylated alcohol, and, as soon as the surface is dry, to immerse the paper in cold, clean water. The intention of the alcohol is partially to coagulate the albumen. Now this part of the operation is unnecessary. I proceed as follows: Take a piece of the albumen paper, slightly larger than the negative, turn up the four corners as you do when you are about to sensitize paper on the silver bath, only in this case the corners must be turned in the opposite direction, that is, towards the albumen film; now lay this paper, plain side downwards, upon the surface of a dish of clean water. It is very possible that the paper will cockle, and thus refuse to lie upon the surface; therefore, breathe upon it and press down the corners gently until it lies smoothly and uniformly upon the water. Take care not to get any water upon the albumen surface. Leave the paper to soak, or until the albumen surface begins to glisten, and is soft and moist.

The next step is this: Take a piece of clean glass, as large as the albumen paper, and, inserting it in the water, bring it up just beneath the paper, and lift the paper completely out of the dish by means of the glass. Let the excess of water drain off. Perform this operation in the dark-room. Now take the exposed tissue, dip the tissue into clean water, as also the albumen paper on the glass for a moment, and then lay the tissue, exposed surface downwards, on the moistened albumen, and, placing the combination of glass, albumen paper and tissue, between several folds of blotting-paper, rub and press them together until the tissue is uniformly adherent to the albumen paper. The blotting-paper containing the above combination, is next placed between two smooth pieces of board as large as the negative, and screwed firmly together by means of two hand-screws or bench-clamps, or it is submitted to a heavy pressure.

In this condition it is left for several hours, or until all the moisture is absorbed by the blotting-paper, and the two paper surfaces are dry and of a yellow color.

At this stage, Mr. Blair recommends us to expose the albumen paper to light for a short time. This, I presume, would be of benefit when the paper is sized with gelatine, but I do not think it can avail anything with paper sized with starch. In fine, I omit this part of the operation, and proceed at once to the development.

The development of a carbon print is very interesting; you cannot help being charmed with it, but it requires much patience; that is, you cannot hurry the operation; be patient, therefore, and, rely upon it, success will crown your efforts. Throw the dry tissue, adhering to the albumen paper, into a pan or pot of boiling water; this will coagulate the albumen and render it insoluble. After remaining about five minutes in boiling water, the tissue is taken out and left in a dish of hot water. Soon you will observe some of the black or colored pigment of the tissue escaping from between the two papers; let this go on a while, and then you may try to raise the corner of the tissue-paper, but do not force it away, but let the water get between and dissolve more of the soluble tissue. Finally, the tissue-paper leaves the film, and the picture appears, but not sufficiently clear, for patches of gelatine still adhere. You may now take a fine shaving-brush and rub off these patches gently in the water; but I prefer letting warm water dissolve them off slowly. This may appear to you a tedious operation, but you can leave a quantity of prints in this way, in a tin vessel on the stove, and attend to other business in the meanwhile; the prints will take no harm, although you may leave them in the water after the picture is developed. Finally, the prints are taken from the developing water, and washed in two or three changes of clean cold water; they are then taken out, dried, and mounted in the usual way.

This carbon process is a charming operation; it is also easy and reliable. If it were only for the sake of experiment, I urge you to try it. I think, too, the process will be profitable; it is new altogether in all our provincial towns, and is sure to take. The first pioneers will make the richest harvest. Stockdealers, have on hand unsalted albumen paper.

OUR PICTURE.

We present a picture this month, a little different from anything we have had before, and which is an example of lighting after the style of that great master, the immortal Rembrandt.

We all know that a photograph is a picture made up of black and white, not of lines, however, like an engraving, but of a gradation of lights, and darks, and middle tints, softly blending into each other, as the booming of the fretful breakers with the flutterings of the summer breeze, as the varied soundings of music blend and harmonize.

The harmony which is produced by the means of black and white depends upon the quantity employed, and the disposition of it in the picture. As the artist regulates this with his pencil, so the photographer, by his lighting of the subject, regulates it. The power of producing pleasing and artistic photographs is dependent upon the management of the light and shade. The quantities of dark that are allowed to pervade the light, and, *vice versâ*, are entirely at the guidance of the artist, whose skill is shown in the management of this difficult department.

This is a subject which we treated fully upon in our series of articles in our last volume on "Art Principles Applicable to Photography," the careful perusal of which we would recommend to our new readers.

The object of shadow, in contrast with the light in a picture, is to secure relief in the first place, and, when deepened, to get more breadth of effect.

This breadth of effect is what has immortalized the name of Rembrandt. With him the most trivial subject was clothed with sublimity, by his masterly method of managing the light and shade. It was his method to have the principal light or focus in the upper part of the face, and then allow it to fall down on the figure, producing, thereby, an appearance of his light giving out rays of the same hue as itself. He then rendered his lights more luminous by using deep shadows at the back of the head and figure, thus adding the greatest value to them.

This method of lighting photographic subjects has occupied the attention of a few photographers for some time, and some sublime results have been secured. Those of Mr. Kurtz have been frequently commented upon in these pages, as have also those by Mr. W. J. Baker, Buffalo, New York, to whose skill we are indebted for the picture in this number.

The first example of his work in this direction, was his exquisite picture of "Little Nell," which we have before described. As he states in his excellent paper on another page, "Little Nell" was his first trial. It is an admirable and eminent success as a Rembrandt effect, and well worthy of careful study, being much larger than one suited to our Journal.

The effect is also admirably secured in our picture, and we are assured by Mr. Baker, and others whom we know are making them, that they are very popular among their patrons. As a new style, we think they ought to take.

Both the negatives and prints were made by Mr. Baker, and they are uniformly good, we think. The excellence of the prints, he says, are due, in a great measure, to the albumen paper he used, which was manufactured for him by Mr. D. Hovey, Rochester, New York. We commend both the paper and the "Rembrandt" to our readers.

PHOTOGRAPHIC SUMMARY.

BY M. CAREY LEA.

Retouching Negatives. — Negatives retouched with "cadmium yellow," are frequently destroyed by peeling of the film. It is, therefore, desirable to use Indian-ink, which avoids this objection.—*Photo. News.*

Mounting Cards. — A curious substitute for boards has been proposed, stout even muslin, well starched and ironed. The advantage claimed, is that it is free from both bleaching salts and antichlor. Of this one is never safe with the boards made of paper. Consequently, the new mounts are safer. The originator of the idea has made it public, to prevent any one from patenting it.—*Ibid.*

Tearing of the Collodion Film in Varnishing.—Now and then the question arises as to the cause of injury sometimes inflicted by the varnish upon the film, and as the subject has again been discussed very recently, I here make known my own experience in the matter. It is usual to ascribe the evil to the too-concentrated condition of the alcohol used in the manufacture of the varnish, and this is, no doubt, in most cases the case; but even with the employment of a dilute alcohol, the unpleasant result may be brought about, when, namely, the plate is rendered too hot previously to its being varnished. Everything depends, however, upon the description of collodion used, for, with some kinds I have purposely overheated the plate to a considerable extent, and the latter has sustained no injury, while, with negatives prepared with other materials, a slight excess of temperature was sufficient to bring about their destruction.

Fixing Negatives.—As some have complained of the destruction of negatives fixed with hyposulphite of soda by time, a correspondent of the *News* brings forward a case in which a set of negatives, ten years old, fixed with hypo, were found in excellent order.

No possible danger can arise from fixing with hyposulphite, if it be perfectly washed, and this washing out will always require a certain time, no matter how rapid the current of water may be. When water is scarce, so that a stream cannot be kept up for the needful time (five to ten minutes, according to size), it is better to distribute the water into four or five pans, and let the negative lie five or ten minutes in each in succession. The last pan, or even two pans of one negative, might be used to begin the next with. Where a stream is used, of course particular care must be taken that a ripple forms on every part of the film, to make sure that the water is everywhere in active motion. Even with this precaution, however, time is needed, because the film is not like blotting-paper, for which solutions can be "displaced," but it is like membrane, from which liquids must be removed by osmose, which is always far slower in its action than displacement.

Stains and Streaks.—Inexperienced photographers are greatly troubled with these evils, the majority of which are due to the manner of pouring on the developer. Even with skilful treatment of the developing solution, however, stains are sometimes unavoidable; for instance, when the different photographic compounds have not been carefully prepared. The silver bath may have been made too strong in comparison with the iodizing of the collodion, or *vice versa*, and in such a case stains must inevitably be produced, even if the developer is poured upon and spread over the plate in the most accomplished manner.

Another disagreeable phenomenon which causes some of our colleagues much uneasiness, is the dark streak which commences at the upper end of the plate and continues down to the middle of the same, or even lower. This is the result of a freshly-prepared bath and too much alcohol in the developer. In almost every photographic manual it is stated that the addition of alcohol to the developer is only necessary when the bath has become somewhat alcoholic by the sensitizing of several plates. This warning is, however, generally disregarded, and an alcoholic developer is frequently used with a fresh bath; the result is, that as soon as the developer is allowed to run off the plate, in order that the picture may be examined by transparency, these streaks are at once formed. Many obviate the same by carefully washing the plate and removing the developer prior to an inspection of the negative, but by this means it is impossible to watch properly the gradual appearance of the picture, a very necessary part of the operation of developing. For this reason, therefore, no alcohol should be used in the developer when a new bath is employed, a little being added only when the bath has been some time in use, and the quantity afterwards increased when the bath has become appreciably alcoholic. If this precaution is properly attended to, the developer may be poured on and off, and the picture inspected from time to time, without any risk of staining.

WRINKLES AND DODGES.

A VERY good intensifier for negatives may be made as follows: Make a saturated solution of aniline-orange and negative varnish. Add sufficient of it to attain the density required, to the varnish when varnishing the plate. Very good printing density may be secured in this way, and the color will not change in the sun.

JNO. R. CLEMONS.

I NOTICE that it is considered by some, that the cracking of the negative film is caused by fixing with hypo. I have produced some two thousand negatives, the first half of which were fixed with cyanide, and the rest with hypo. Since I began the use of hypo, I have not had a cracked film (except in two cases, where the plates were subjected to extreme cold), and I think the reason why some negative films crack, that are fixed with hypo, is because they have not been properly and fully washed. I use about three quarts of water to each negative, washing slowly and thoroughly.

I attributed the cause of my negatives cracking, when they did, with cyanide fixing, to using too thick a varnish, which did not penetrate the film, but rather slid over it, whereas, it should penetrate to the glass and help to fasten the film firmly. Dearly as I love photography, I should hesitate to return to cyanide, for I am confident I felt the evil of its use before I laid it aside for hypo.

B. W. KILBURN.

WITHIN a few days my attention has been called to some spots on paper by my printer. I had not much time just then to devote to the printing department, so I told him to filter his bath well, wash his dishes, and try again; but it would do no good, and it was so bad that no printing could be done (at least with that bath), so I determined to see into the matter and find out what was the trouble. I filtered the bath carefully and proceeded to silver. I took the paper up just as slowly as it possibly could be done after silvering, and held it up to the lamp to see how it looked, and found to my surprise that the solution was running in lines in every direction on the paper, standing in drops and drying so. I was convinced now that it could not be dirt, as I had supposed before, because I knew that the bath was perfectly clean; so my next step was to try its strength. I found that it had (by evaporation) run up to 90 grains from 60 grains. Of course, I reduced it at once to 60 grains, filtered, and silvered more paper, and the spots had disappeared and the paper was clean.

WILLIAM ZAY.

DURING the period of dry and cold weather this winter, I received from several sources a number of untoned pictures, which looked as if the paper was imperfectly silvered. Several of the senders stated that the paper had been floated long enough, and that the solution was sufficiently strong. It struck me that probably the defect was due not to a scarcity of fine nitrate of silver, but to the exceeding dryness of the paper, preventing the decomposition of the nitrate by the light. To test this matter, I slightly dampened the paper on which the spotted pictures had been made by holding it for a few moments over warm water, and then laid it under a negative in the light. The result was, another print, full of vigor, and free from spots. The same experiment was repeated with all the samples I had, ten or twelve, with the same result; thus proving my surmise to be correct.

A few days ago, a dealer in photographic materials received back a quantity of albumenized paper, with the statement that it was worthless. Accompanying it were several prints which had the same appearance as those I mentioned before. Being tested however in the same way as the others, the spots appeared in the new print, thus proving that there was a real absence of silver here. The prints were then floated again, and being again exposed to light, the paper was found to be of good quality, printing vigorously and without spots. Years ago, photographers used to float their albumen paper from three to five minutes, now the manufacturers of albumen paper are so persistently recommending short floating to avoid discoloration, that some photographers have run in the opposite extreme.

CHARLES WALDACK.

SALAD.

A FEW SETS of the $50 prize pictures left. $3 for 23 cabinet size mounted.

"HOW TO PAINT PHOTOGRAPHS," is nearly all gone.

TRY to correct, in your own work, the faults you see in the work of others.

EVERY photographer should have a good glass-house, for it can always be secured at a light expense.

WE trust our readers will not be intemperate in their pursuit of spirits (photographic) the coming hot weather.

AN individual, out West, gives a dozen card pictures and a full set of teeth for $22.50.

HERR STEINHEIL received a gold medal for his aplanatic lenses, at the late Exhibition of Photography in Hamburg.

THERE was a photographic exhibition held in Clifton, England, last month. There will be a Dutch one in Groningen in July.

"WHAT will you charge for one coat of paint on my photograph?" said a lover of cheap art in Pennsylvania.

A PHOTOGRAPHIC JOURNAL has been started in Holland, called *De Navorscher op het der Photographie.* It is published in Amsterdam.

A WIDOWER, who had buried five wives, strayed into Mumler's to get a picture of himself for his sixth Dulcinea. Imagine his horror at seeing the *spirits* of the five aforesaid wrangling in the background.

CUTTLE-FISH POWDER is recommended for giving a biting surface to the negative for retouching. Shulz recommends rubbing the varnished negative with turpentine before retouching.

THE Swan, Edwards and Johnson carbon patents, have all been combined in England, and assigned to the Autotype Company. This is wise, will prevent lawsuits, and hasten the popularity of carbon printing.

OUR English brethren are also devoting some attention to explaining the uses of the velocipede for out-door photography. They have not yet told us how to carry them, "traps and all," over rough places.

MR. HULL, our able New York correspondent, was the chief witness for the people in the Spirit Photograph case. He is also a well-known soap manufacturer, and one of our most skilful amateur photographers. The *New York Herald* says: "He could not have exploded the spirits more effectually if they had been bubbles of his own 'pale brown.'"

A WOMAN, with a child, entered a photographic gallery in Newburgh, New York, the other day, and, previous to placing it for a picture, the woman subjected the child to a vigorous spanking. The artist interfered, when he was informed that she was only trying to get up a fine color in the child's face in order that it might be represented in the picture with blooming cheeks. She was somewhat surprised to learn that the matter of color in a photograph was quite an after consideration; that the machine to take colors just as they stood was not yet invented.

THE most noteworthy event of the past month has been the Manchester Exhibition. I note the great number and variety of the prints exhibited. Exhibitions of this kind give a stimulus to exertion, and are very useful in enabling photographers to ascertain what their brethren in other places are doing. I am not aware of any exhibition worthy of the name that has not been attended by this result. For this reason, therefore, they should be encouraged, for, assuredly, they tend to advance the art.

Corr. News.

ONE of the most amusing things of the very amusing "spirit photograph" trial, is the question asked Mr. Bogardus by the counsel for the defendant, viz.: Whether or not he supposed that, if a photographer had been present at the interview between Saul and the ghost of Samuel, he could have taken a photograph of the ghost?

This is a fresh question; one which, so far as our knowledge of biblical literature extends, has never been discussed by even the wildest of commentators. The scene which it calls up before the mind is delightful to contemplate. The interview took place at night—a point which evidently escaped the attention of both the counsel and Mr. Bogardus—thus the photographs would have had to be taken by the light of the moon, struggling through the ragged clouds of a murky night, or with a calcium or magnesium light. Saul, King of Israel, starts out, accompanied by the artist, whose presence does not in the least disconcert the Witch of Endor. The ghost appears; the artist adjusts his camera, puts the black cloth over his head, and gets the ghost in focus, asking it to "throw its head a little back." Then the artist takes out his watch and requests the ghost to look at it for a few minutes. In the meantime Saul and the Witch perform a tableau.

It is difficult to take a photograph at night, even when the object to be delineated is more substantial than a disembodied spirit, and, at best, the photograph of a ghost can only be the ghost of a photograph.

If the trial should prove that "spirit photographs" *can* be taken, we suggest an experiment: Let some artist endeavor to try his art yet further, and settle a quibble for us. Let him try to get a photograph of M. Comte. It would be so delightful to have a negative of a positivist!—*N. Y. Herald.*

PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

THE regular monthly meeting was held Wednesday, May 5th, 1869, at 8, P.M., the President, Mr. Frederic Graff, in the chair.

The minutes of the last meeting were read and approved.

Mr. Borda offered, for examination, his Nelson Wright changing-box for landscape photography. All of the outfit is contained in a small satchel, separated by divisions, so that no injury can occur to the somewhat delicate apparatus when subjected to rough journeys. The size of plate used is four inches square.

Mr. Borda explained the manner of preparing and developing wet plates in the field with Mr. Wright's apparatus, and exhibited a fine enlarged albumen print, made from a small negative by Mr. Albert Moore, of Philadelphia. The subject, a view in Pike County, Pennsylvania, was admirably enlarged to 18 x 23 inches. The definition seemed to be evenly distributed all over the plate, and, as an ornament for the walls of the studio or parlor, the print was admirable. The lens used was a Zentmayer 2¼-inch focus. No focussing was required, as the box was carefully made of the exact focus of the lens, and screwed perfectly rigid, the focus being previously ascertained by a microscope.

Mr. Edward L. Wilson exhibited a specimen by Herr Albert's new process of photo-lithography, which appears to be an advance in the manufacture of that form of picture.

Also, from Mr. F. A. Wenderoth, a great variety of carbon prints upon glass. They were much admired. The subjects, both portraits and copies of engravings, being of exquisite softness and delicacy of tone, unapproachable in paper positives.

The competitors for the two prizes offered their prints and negatives, and the chairman appointed Messrs. Edward L. Wilson, E. Borda, and F. T. Fassitt, as the judges.

On motion, a recess was taken to allow the committee to examine the work of the competitors.

After their examination of the merits of the prints and negatives, the committee reported as follows:

"After a careful examination of the negtives and prints offered by the competitors, for the two silver medals offered by this Society for the best negative, and print therefrom, of Girard College, and for the best negative and print therefrom, of Hugh Davids, Esq., your committee beg to report that they find the best of the Girard College are by John C. Browne, Esq.; and of the latter, are by Messrs. Keeler & Fennemore. To them they award the prizes offered, and present the negatives and prints for your inspection.

"There were some negatives of Mr. Davids presented for competition, without any name attached to them, which were carefully and finely retouched, but were not admitted to competition by the committee, on that account, it being understood by them that the offer of the Society was for pure, unimproved, plain photography. In their judgment, retouched negatives, and prints therefrom, cannot be so considered. Your committee regret that the number of competitors was not greater, and, should the Society offer other prizes, they hope the competition will be more general. In making their negatives, Mr. Browne used the 8-inch focus Zentmayer lens, and Mr. Fennemore a 4-4 Voigtlander lens."

The report of the committee was accepted, and then followed the examination of the competing pictures by the members of the Society.

It was ordered, by the Society, that Messrs. Wilson, Borda, and Fassitt be authorized to procure the prize medals awarded, and report at the stated meeting in June next, when the medals will be presented.

Mr. Davids moved that a prize be offered by the Photographic Society of Philadelphia, to competing members, for the best 4-4 negative and prints, landscape subject. Also, a similar prize for the best 4-4 portrait-negative and prints. The subjects for both landscape and portraits to be left discretionary with the competitors. Negatives and prints to be ready for examination at the December meeting of the Society, 1869. The negatives to be made meanwhile. To be untouched, and the prints upon albumen paper. Adopted.

On motion, adjourned.

Jno. C. Browne,
Recording Secretary.

NEW YORK CORRESPONDENCE.

Since my last this city has been the scene of considerable excitement and interest, caused by the preliminary investigation of so-called spiritual photography.

The defendant was William H. Mumler, who claimed to have the power of calling from their repose, the sacred dead, to be by him photographed in the most bungling and inartistic style.

To the astonishment of all, Mumler not excepted, the Police Justice (Dowling) discharged the complaint instantly, on the ground that the prosecution had not proven the manner in which Mumler operated. Why did they fail in this? Because the Justice denied an order to seize the apparatus of Mumler at the time the complaint was lodged, consequently but one course was then left, and that was to prove that pictures exactly similar could be made by natural means, and that said natural means could be so used as to deceive the most shrewd and widest-awake person. Mr. Oscar G. Mason, humbugged full half a dozen, one of whom understood photography in its various details. Mr. Bogardus did the same, by no less a person than Mr. P. T. Barnum, all of whom were informed that they were to have such pictures made, and watched the whole process, from cleaning the glass to development of the negative, and failed to discover the trick; and to all of which they solemnly swore.

If such persons, who knew that a trick was to be played upon them, could not discover the means used, I would be pleased to know how any credulous individual, who fancied the room filled with all sorts of spirits; whose mind was excited by the anticipated presence of wife, mother, or child, and who was ignorant of our art, could be expected to catch Mumler, no matter how faithfully such may have watched?

It being fully proven that sane persons could be deceived, who looked on in cool wakefulness, which, in the law, is proof against supernatural agencies, for neither statute law or common sense recognizes such, when natural means will produce similar results—in spite of which, Justice Dowling decided Mumler innocent in law, although he admits that he is "*morally convinced* that trickery and fraud were used." Indeed, so far as I am able to discover, this decision not only fails to meet the case upon grounds of reasonable common sense, but fails as well to meet the views of the papers which have reviewed it, or the public who have given it a moment's thought or attention.

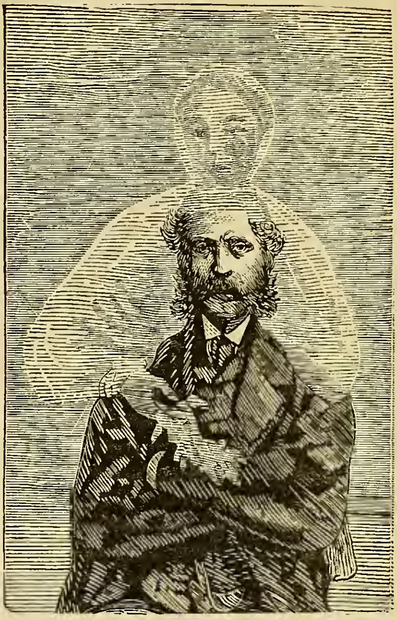
The *Herald* terms it a "most ridiculous decision, discharging Mumler with a grand advertisement, and full freedom to inveigle all the countrymen he can into his gallery. Common sense and reality are not to be departed from, or every bedlamite can give his own crazy reasons for misconduct, and there is no safety whatever."

It has long been held that a chain of good circumstantial evidence was enough to hang a man. It is not, in case of murder, held to be important to know *just how* the accused killed his victim: whether he shot him from behind a fence or a tree, or with his right hand or his left; but to prove his presence, his animus, or his advantage by the death of the one slain. It is now reversed! *All*, by this decision, must be positively proven, to even hold for the action of a grand jury.

All that was needed to hold Mumler, was probable cause. If such was not proven in this case, it never has, it never will be.

This decision has had, at my hands, more attention than it is worth. The *Herald's* words, "most ridiculous decision," well and aptly brands it.

These miserable photographs are so shadowy, so dim and indistinct—as will be seen by the copies which are herewith printed—that imagination of the *highest* order is required to detect a likeness to any one, dead or alive.



One, of a female form (see cut) behind an innocent man in a chair, has several strange characteristics. First, it was not recognized by the man, as a portrait of his wife, until he was informed by a well-known believer that it looked like her. Then he knew it, and now swears it is good. (He is easily suited.)

Second. The shadow is upon the opposite side of her face from his; which, to a photographer, appears incomprehensible, but not so to Mumler & Co., who say that the spirits are not subject to our laws of light, but supply their own light; are self-luminous. Well, granted. Now, if such is the case, they must emit light, and consequently have no business with *any shadow*. A lamp-flame is not shaded upon any side; it is luminous; and, so far as this goes, is like Mumler's so-called "spirits." What nonsense!

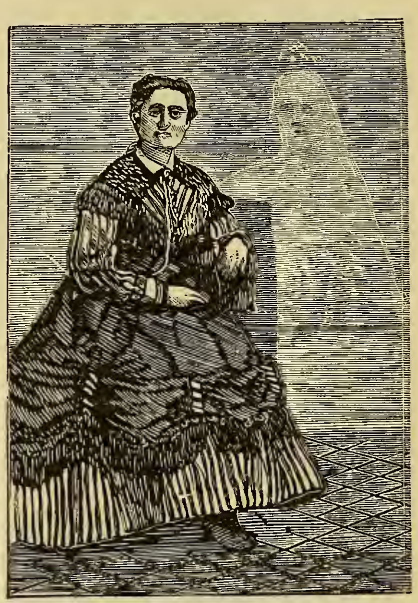
Third. The drawing is all wrong. Her right hand, in which the bouquet is held in front of him—she purporting to stand behind—would, if this was an honest picture, be elevated nearly or quite as high as his chin, from the fact, that to reach around him, it *must* be raised higher than shown; consequently the upper arm, from elbow to shoulder, would, in the drawing, be foreshortened, which it is not. It hangs down by her side, from shoulder to elbow. So also does her left arm. Plainly proving that this "ghost" was made up from some old picture.

Fourth. The so-called "spirits" are material or immaterial, at pleasure, Mumler says. They are seen by the camera, but not by the eye! Wonderfully strange!! But how about that bouquet? That is presumed to be material. Yet, it follows, that inasmuch as the shrewd gentleman in the chair (who knows nothing of photography, yet investigated the whole matter) did not see it when within eight or ten inches of his nose, it must be like the rest of the appearance, immaterial. Query, have these so-called spirits power to convert the corporeal to incorporeal? If so, the story of Aladdin and his wonderful lamp is no longer a fairy tale, but a fact.

Mumler presented about twenty different photographs. All the "spirits" were arrayed in the conventional shroud. Some were of children dead twenty years. One of a soldier slain in battle. Were all robed in shrouds? Doubtful. If not, where do they get them? Unless there is a place beyond this earth where shrouds can be had, they must steal them here, in which case they are bad spirits, and should not be encouraged in their visits.

The undersigned, with Messrs. Bogardus, Mason, Fredericks and Jones, visited Mumler's place, on his promise made in court, to take anybody's picture with the ghost in it; we, however, did not succeed in having ours made. His partner, Guay, offered to go to any gallery, on a wager of $500, and make such, but "backed out" as soon as his offer was accepted, lost his temper and his judgment, and declared he "was on the make," and "he didn't care a —— who knew it."

This Mumler has a place on Broadway, up several pairs of narrow dirty stairs, where he with impudence unsurpassed, declares that he can bring upon his foul call the "just made perfect;" whose lives when on earth were pure, holy, and whose presence when in the flesh would have recoiled from such contaminating surroundings.

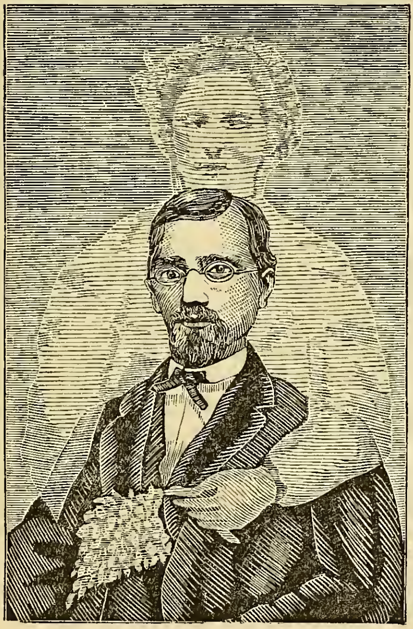


Will it for an instant be believed, that people live in this century of boasted intelligence, who with serious thought indorse such preposterous claims; and seated in front of his camera await the presence by their side of the "holy dead;" and whose diseased imaginations recognize in the dimmest and most obscured outlines (see above), a likeness of those they loved on earth?

Common sense blushes in acknowledging that such people do live, and strenuously defend such claims.

Nothing would do more to make me wish that there was no future beyond the grave, than the belief that an honored and beloved father, or a sister whose saintly purity of thought and life, now lost to earth but found in heaven, were at the beck and call of any Mumler; or whose repose was subject to be disturbed by the impious summons of any mortal, whose calls were louder as his pay for such was greater; and brought into some filthy gallery, the vulgar surroundings of which would have disgusted them in life. My command of language fails to convey one tithe of the abhorrent contempt I hold for such wicked and outrageous doctrines.

To Mr. Oscar G. Mason more credit is due than has yet been given, for his ingenious labors in producing the so-called spirit pictures, especially his mica dodge, which consisted in copying through a camera any figure you might choose upon mica as a positive by transmitted light, and mounting this little piece of mica upon a stick, in the end of which is placed a pin's point. Any photographer will at once see how easy it would be to place such a positive within the camera when focussing, so that the image would be thrown upon the sensitive plate, and to remove it when removing the plate-shield. The cut below is from one of Mr. Mason's Photographs.



Mr. Elbridge T. Gerry, and Assistant District Attorney Blunt, are entitled to the thanks of all, for their able and diligent prosecution of the case in behalf of the people; a case difficult in the extreme, of intricate character, and claimed supernatural surroundings. Had it come to a trial before a jury, where trick and trickery would have had to face the stern clear laws of common sense, much that is now thought wonderful, because not explained, would have been exposed, and where it would not have been allowed to ascribe to the dead any phenomena, because the living have failed in its solution.

The Photographic Section of the American Institute held its regular meeting May 4th, Mr. Abraham Bogardus, Vice-President, in the chair. Mr. Hull introduced the following, which was adopted without a dissenting voice:

> WHEREAS, recent investigations before Police Justice Dowling, of so-called Spirit Photography, satisfactorily disposes of such, and at once brands the whole matter as trickery; therefore, be it
>
> *Resolved*, That the Photographic Section of the American Institute take the earliest opportunity to condemn all such methods of working upon the credulous and uninitiated, and that they receive with wonder and amazement the decision of the Justice; and be it further
>
> *Resolved*, That to our worthy member, Mr. P. V. Hickey, of the *World*, who lodged the complaint upon which the proceedings were based, we offer our thanks, for his praiseworthy though unsuccessful efforts in the cause of truth and common sense.

Mr. Kurtz exhibited a superb photograph of a lady, printed upon albumen paper, and retouched in India-ink; also a large burnt-in picture, colored on porcelain.

Mr. Newton exhibited some coffee dry-plate negatives, made in fifteen seconds, with 3½ inch focus hemispherical lenses. He stated that he could not account for the extreme shortness of exposure, but was inclined to divide the honors between the lens and a new developer as follows, and which is to be compounded in the order given:

Water, ...	15 ounces.
Gelatine, ...	15 grains.
Protosulphate of Iron, .	1 ounce.
Double Sulphate of Iron and Ammonia, . .	1 ounce.
Glacial Acetic Acid, . .	4 drachms.
Tartaric Acid, . . .	15 grains.

Thirty-two drachms Acetic Acid, No. 8, will do instead of the Glacial Acetic.

Mr. Chapman stated that these coffee plates were as good as some he had prepared by the collodio-bromide of silver process, and required but half the time.

In regard to this process, Mr. Chapman said that he had placed in a window a bottle of the collodio-bromide of silver solution, where it had remained the whole of one day, one half the time being exposed to full sunshine, and that upon its removal to the dark-room, and flowing upon the plate, no difference in its working could be detected; it was as sensitive and good as other samples which had always been kept in the dark. He thought this was an argument in favor of M. Carey Lea's theory of physical or mechanical action, in which view Professor Tillman joined him.

Mr. Boyle exhibited a telescope having two eye-pieces, intended for a comet-seeker, by which the astronomer has double the field of view. He also exhibited a superb model of the moon, nineteen inches in diameter, giving all the mountains, etc., in exact proportions to the moon's surface. In height they are exaggerated six times. His theory, as to the composition of the moon, you have already published.

Mr. S. T. Reed stated that he had used, with marked success, two or three drops of carbolic acid to a printing-bath, which he had failed to render of use by any other means known to him.

In the hope that your readers are not more tired of this long letter than I am,

I remain, &c.,

CHAS. WAGER HULL.

◆

Editor's Table.

We forgot to mention that the picture in our last issue was on Clemons's Abumen Paper.

Mr. Proctor says his apparatus will enable one to make pictures with three cents' worth of light instead of the sum we before stated.

A communication has been received from "H.," and his request shall have early attention. Meanwhile, see page 9, of our Vol. IV.

"Amateur" will receive the information he desires, by corresponding with Elbert Anderson, care William Kurtz, 872 Broadway, New York.

We Hope it Will Be So.—Mr. M. H. Albee writes us: "I think no one who has read your Journal, can ever regret spending the money paid for it. It will gain you many friends."

Messrs. Wilson, Hood & Co., present a beautiful photograph of their new and tasteful accessories in this issue. They deserve the patronage of the trade. Prints are by Messrs. Schreiber & Son, on Ashton's Hot-Weather Paper.

We go to press unusually early this month, in order to give more attention to the affairs of the *National Photographic Association*. During the next two weeks correspondents will please bear patiently with us. We hope to meet hosts of our subscribers in Boston.

Mr. Geo. W. Lovejoy, Stepney Depot, Fairfield County, Connecticut, is the gentleman who is being prosecuted for "infringing the Shaw's silver saving apparatus." Our readers will do *themselves* good by communicating any evidence to Mr. Lovejoy, that will aid him in defeating that pretentious patent.

We are obliged to Mr. H. P. Macintosh, Newburyport, Massachusetts, for some very interesting stereos, among which are views of the birthplace of William Lloyd Garrison, the residence of John G. Whittier, the house in which the Rev. George Whitfield died, and his tomb in the Old South Church.

Spiritual Photography has been the excitement of the past month. Another sublime humbug has been advertised pretty freely. Unfortunately for Mumler, and fortunately for the public, the inveterate and merciless 1st of May intervened, and Mumler's lease expiring, he had to close up his shop and go, *his* spirits cannot tell where.

St. Louis Photographic Society.—We are glad to learn that a Photographic Society has been organized in St. Louis, under very favorable auspices. Mr. A. J. Fox has been elected President, and Robert Benecke, Esq., Secretary and Treasurer.

Under such officership the Society ought to grow, and we hope it will. We shall publish its proceedings.

The Prize Medals of the Photographic Society.—One of the most pleasurable meetings of the Photographic Society of this city, was the last one, and the most interesting incident, the offering of competing negatives and prints for the silver medals offered by the Society.

As one of the judges, we were struck with the remarkable difference in the posing, lighting, and general management of the portrait subject, by the different competitors, and with the same remarkable difference in the choice of view of Girard College.

They were as widely different as the treatment of great master painters of the same subject—as two political creeds could be—as the bulls and bears of the stock-board; and yet the majority of them were good pictures There is nothing more instructive than studying the different ideas of different artists of the same subject, and we are making effort to have it so that any of our readers, who wish it, may obtain copies for their study, from all the competing negatives.

The plan adopted by our Society of giving prizes, cannot be too highly commended. It will result in much good.

The following testimonial to our humble Journal, is sent us by our obliging agents, Messrs. P. Smith & Co., Cincinnati, Ohio, and is one of the most touching we have ever been favored with:

Mr. C——, one of our old subscribers, on his dying bed was having a parting interview with his wife, assisting her to arrange her plans to work upon after he had departed. The current issue of our Journal was handed in during the interview, and with it our usual notice in such cases, that the subscription had expired. After stating the circumstance, and renewing her subscription, Mrs. C—— writes:

"I well remember what he said when our last number came to hand: 'My dear old friend, did I expect to remain in this world, I would send for you again;' then turning to me again, he said: 'Now ———, when you begin work, don't fail to send for the *Philadelphia Photographer*, for you will ever find it a ready friend in time of need.'"

This is the testimony of a dying photographer. Would that we were more worthy of it!

The Exhibition, etc.—At this writing (May 15th), the prospects for a grand affair in Boston are exceedingly bright and promising. Mr. Loomis, our efficient Local Secretary, writes us that "*the space in the hall is taken up 'from floor to ceiling.'*" This is not for American work alone, but, considering the short time they had, the contributions from abroad are far in excess of our expectations, and, as we are privileged to know, more beautiful than any one expects. The Exhibition, therefore, will be a grand, a glorious success. It will be open each afternoon and evening.

The opening meeting of the Association will be held at 2 P.M., Tuesday, June 1st, and daily meetings will be held at 10 A.M. during each day thereafter until Saturday. Subjects of vital importance will be discussed, no doubt, which should interest every one in the profession.

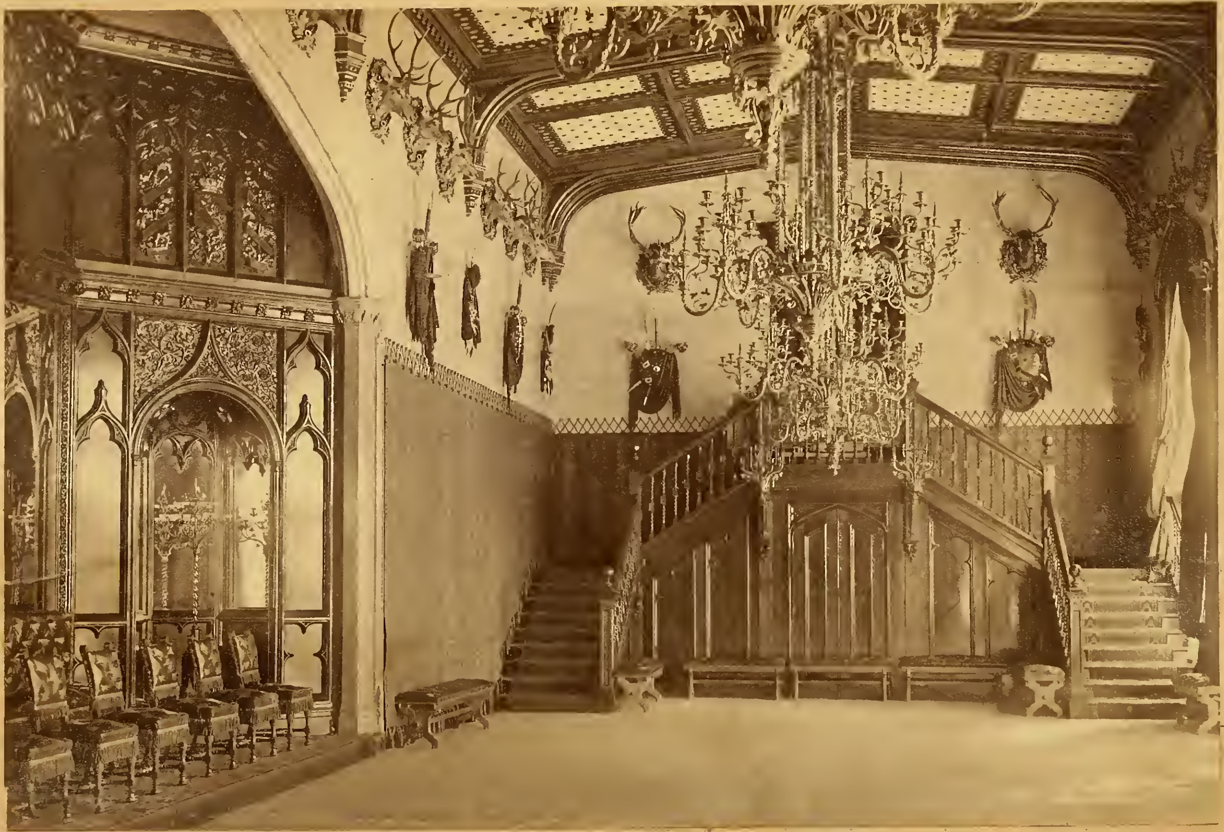
Prof. John Towler, M.D., will deliver the first evening lecture on Wednesday evening, on "The Concentration of Ways and Means—Unity of Action," which will have for its object the instruction of the working photographers. The second lecture will be by Dr. J. T. Boynton, on Thursday evening, on "Sunlight and Moonlight," brilliantly interspersed with striking experiments illustrative of his subject. Friday evening will be devoted to the exhibition of glass transparencies by O. H. Willard, Esq. This will be a brilliant and instructive exhibition of this beautiful and useful branch of our art. The transparencies will be from photographers all over the country.

All this should induce a large attendance, and will be instructive and useful in many ways. Make a sacrifice and go, and you will have no cause to regret the expense it may cost you.

The Illinois State Microscopical Society met in Chicago, May 7th. Mr. John Carbutt was elected photomicrographer to the Society.

W. J. B.—"I had began to fear, Mr. Editor, judging from the praise you bestowed upon the prints in some of the numbers of *our* Journal, that you did not have a very fine eye, as I had thought, but your letter criticizing my own work, pleases me very much."

"W. J. B." has our thanks for what he has said. He will not forget that every month we have to provide over two thousand prints for our Journal. In printing so many, at the price we can afford to pay, and in the time we are obliged to get them done in, sometimes it is impossible to make every print first class, and uniform with the best. We have always schooled ourselves to looking on the bright side, and we are very apt to speak judging of the *best* prints. Then, if our correspondent gets a bad one, he naturally doubts our judgment in the matter. So few photographers are willing (from indifference or some other cause) to make negatives for us, that we have great trouble in procuring what we do.



G. W. WILSON Aberdeen.

INTERIOR OF THE BALL-ROOM, BALMORAL.

ANNOUNCEMENT!

The readers of the *Philadelphia Photographer* are too well skilled to need any argument to convince them of the fact that the introduction of tasteful and appropriate accessories into their pictures, enables them to secure more beautiful compositions and more satisfactory results for their customers. Be the subject ever so graceful, without accessories, the picture seems to want finish and style.

We have therefore devoted much time and money to the production of such accessories, and are happy to see that they are daily used all over the United States, Canadas, South America, West Indies, &c., &c. Being the only house in the country that pays any attention to this branch of trade, we feel warranted in going still further, and on the other side present a photograph of several entirely new articles, together with some of the most popular of our older ones.

We ask your careful examination of them, and solicit your orders, as we are now ready to supply them.

In order that orders may be given intelligibly, we give a description of them below, and parties ordering will please be particular to state in full which particular piece or pieces they desire.

I. The group on the left is our No. 25 Vase (large) and No. 1 Table, both already popular styles. Of the tables we have sold over two hundred, and they are still so popular that we shall continue to make them, although we thought of discontinuing to give place to the new one. No. 25 Vase, $10; Table, $25.

II. The second is a new Column, entirely original in pattern, and very chaste and beautiful. It is of proper height to suit a standing figure, and is elegant used either with or without flowers. We feel that it will become very popular. It is almost entirely of wood, and is exceedingly strong and solid. Price, $25.

III. The centre group is our No. 10 Vase (top), No. 20 Urn (large), and our Reutlinger Pedestal Both the Vase and Urn can be used for flowers. The latter has an extra top piece (not shown in the picture) for use when flowers are not used with it. The Reutlinger Pedestal was introduced by us about a year ago It has the four sides differently ornamented, and a subtop, so it can be raised or lowered. It is a great favorite in the trade, and a great help in posing standing figures. We therefore continue its manufacture. Price, $25; No. 10 Vase, $5; No. 20 Urn, $10.

IV. The fourth group from the left consists of our No. 9 (small) Vase and our No. 2 new Column. The Vase is much more beautiful than the photograph represents it to be, and very tasteful for either of the columns or the pedestal when filled with twining vines or flowers. The No. 2 Column is another new one, likewise graceful and artistic in its proportions, and made to accommodate flowers. The images here are much smaller than they would appear in a cabinet picture, and do not show to as good advantage. Both the new Pedestals are solid and strong, and handsomely carved. No. 9 Vase, $5; No. 2 Column, $25.

V. The group on the right is of a No. 8 Vase (left), a No. 4 Vase (right), and our new pattern of Table No. 2. This Table we think will meet all the requirements necessary for a good, useful, universal table. It is light and airy and graceful in its proportions; tastefully ornamented, the sides and ends differing; the top is made of such a shape, and the lower ornaments so mounted, that the sitter can be placed close up to and partly under the table without hiding too much of its beauty. Moreover, it is furnished with a central iron, invisible screw, by means of which it can be raised and lowered to the extent of five inches. The last two advantages will be fully appreciated by any practical operator. It is the handiest and most useful Table ever manufactured, and will no doubt become very popular. No. 8 and No. 4 Vase, $5 each; Revolving Table, $25.

We suggest that the use of flowers and plants with our accessories greatly help the effect in the picture.

In addition to the above, we make about 20 different patterns of Vases, and two styles of low Vases for posing children upon. We will mail photographs of them free to all who contemplate making a purchase

We have supplied our accessories to hundreds of photographers during the year past, and they are in daily use in the most prominent galleries. The universal expression is that they are a great aid to the poser in making up his compositions, and that no investment pays better than that made for our accessories, for they *please the customers* They are made *strong* and *for use.*

If parties at a distance will remit in advance, these goods can be sent by railroad or steamer at much lower rates than by express, and more safely. Parties who do this will have their goods delivered to the freight depots free of charge for boxing or cartage.

We hope for your liberal patronage in return for our efforts to popularize and improve your work.

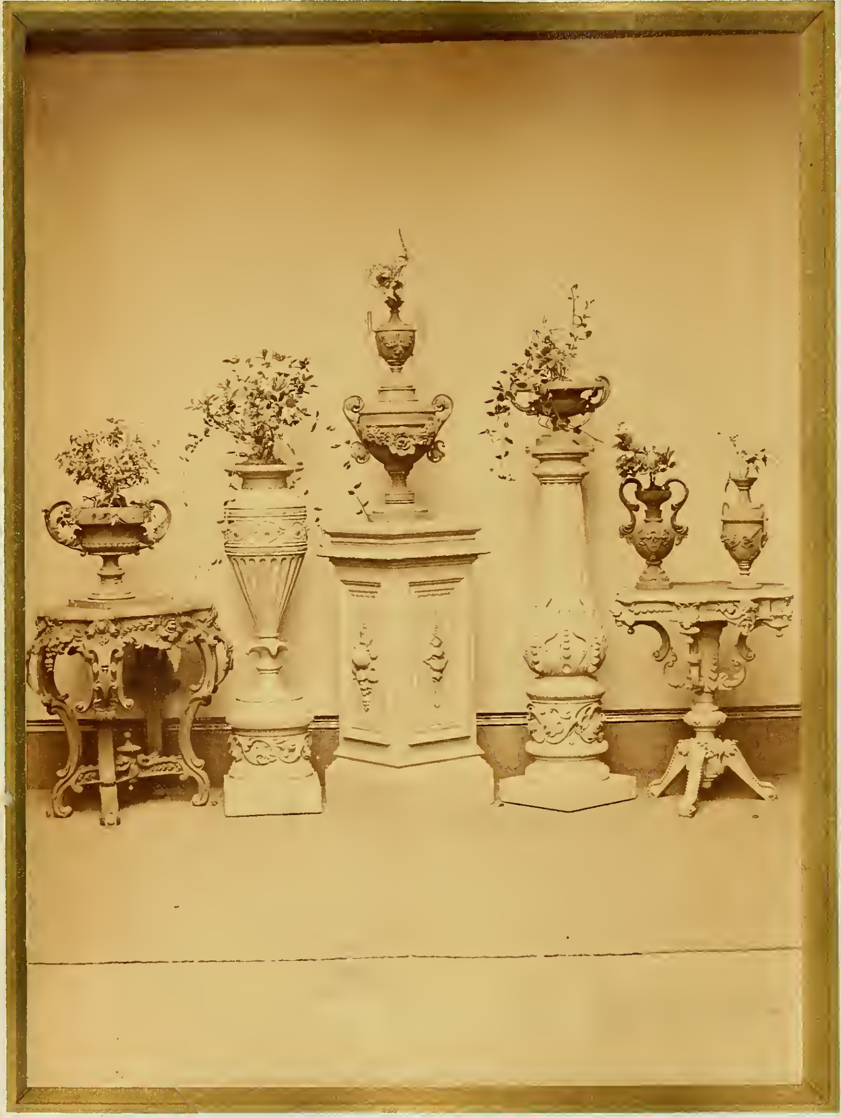
We also keep the largest stock of Photographic Requisites, Apparatus, and Frames in Philadelphia.

Edward L. Wilson,
John G. Hood,
W. D. H. Wilson.

WILSON, HOOD & CO.,
No. 822 Arch Street, Philadelphia.

Please read our Advertisements.

The beautiful Mounting Boards used for these Pictures are from the manufactory of Messrs. Rouaut & Hutinet, Paris, for whom we are agents. We are prepared to mail samples of their elegant goods to all applicants.



ROHAUT & HUTINET MANUF^RS, PARIS

Boston Public Library.

Wilson Hood & Co.

PHILADELPHIA

THE

Philadelphia Photographer.

Vol. VI. JULY, 1869. No. 67.

Entered, according to Act of Congress, in the year 1869,
By BENERMAN & WILSON,
In the Clerk's office of the District Court of the United States for the Eastern District of Pennsylvania.

THE EXHIBITION

And Meetings of the National Photographic Association.

THE official report of the proceedings of our young and prosperous Association, are so lengthy and full, that our readers will tire, we fear, if we say much more. One fact has been fully and entirely demonstrated, *i. e.*, that the whole affair, all things considered, was a grand, a glorious, *a decided success.* Our anticipations and our hopes were probably more exalted than those of any one else, but they were fully met and greatly exceeded.

When we first visited Horticultural Hall, May 30th, with our efficient local secretary, Mr. Loomis, it was arranged for an evening entertainment. In the lower hall was a modest number of boxes of various sizes, from all directions, containing the pictures for exhibition. Monday morning early, a posse of carpenters was there, cleared the hall of seats, and, by noon, all the wings were erected, and the busiest set of photographers we ever saw, hard at work hanging the pictures.

Under the superintendence of Mr. J. W. Black, the work progressed systematically, and bravely, and rapidly. The hall was so admirably fitted for the purpose, that there was scarcely any choice of light, so the pictures were *all* hung in *good* light. No conception can be had of the amount of work done, and done so cheerfully, as that done for the success of the Exhibition by the Boston Photographers. Monday, day and evening, and Tuesday, up to the hour of opening, 2 P.M., the noisy hammer was heard, but soon after was quieted, and the grandest Exhibition of Photographic Works ever seen in this country, was opened to the public. *We* never saw such a collection. *No* man ever saw such a one in America. When we consider that no premiums were offered, no incentive, except encouragement given, it was wonderful. Our only regret is, that the whole fraternity could not have been there to enjoy it and profit by it.

Fine as it was, we are sure that the next one will be many times more brilliant. The *general* impression was, that "it would not amount to much, as there was not interest enough among the craft in their business to send their pictures." That common error must now be forever eradicated. Nearly one hundred and fifty persons showed it to be an error, and next year there will be hundreds more. Let all our earnest men begin now to study and improve, and to prepare for *their* display in Cleveland, in 1870.

The question arises: Why should I? What good are these annual exhibitions going to do me, and why should *I* make effort to have a display there?

Allow us to answer. Many of you are complaining of dull times, low prices, and a non-appreciative public. The tendency of our art has, we fear, been downward. *Let us lift it up*, elevate it, show the public what it will do, make them respect it, tempt them with its beauties, *and then* elevate your prices. To do this we must have an annual exhibition of our work, and the *best* we can make. We must then invite the public to see what we can do. The public will become interested and surprised, as they were in Boston, and the result will be, more work for the photographer to do, at better prices. Another good may be derived from these exhibitions, even as important as the other, and one which we hope will not fail. Photographers should not only contribute their work, but they should attend the exhibitions themselves, and study the work of others. It will be a delight and a source of profit to them greater than they imagine, as all who attended the late Exhibition can testify.

We were assured by such, that they would not have missed the privilege, for many times what it cost them. Each man went back to his work, cheered, encouraged, elevated, with new desires, and hopes, and aspirations; with renewed determination to do better work, and to strive harder for perfection. It was a grand thing to be able to study the work of so many co-laborers at once. It was an era in the history of American photography, which will have its effect during the coming year, be assured, and we shall see the result at Cleveland.

But, as we expect to write on this subject every month for the next year, we will close now, only adding, that, small as it was, the exhibition of foreign photographs was charming. A great many pictures were sent from abroad that did not arrive in time. They were in the New York Custom-House in time, but the jealousy existing between that city and Boston (we cannot conceive any other cause), caused red tape to be knotted so tightly, that all our persuasive powers and begging could not get them out in time. The action of the custom-house officials was simply scandalous and uncalled for, for the time of our Exhibition was made known to them often enough. Next year we shall give our foreign brethren more time. Judging from their liberal response this time, with the short notice we gave them, we expect a grand display next year. As all the parcels sent have not yet been allowed to reach us, we shall defer, until our next, a general review of the foreign contributions, which are extremely fine.

We must not close without a word for the Boston photographers. If we can secure the unanimity, the co-operativeness, the cordiality, and the good feeling toward one another, that exists among them, all over the country, the photographic year of jubilee will have arrived. They spared no pains to make the occasion a pleasurable one to all visitors, and they succeeded pre-eminently. They will never be forgotten, nor their stockdealers either.

The business meetings of the Association were harmonious throughout, and plans laid for the future workings of the Association that must result in great good.

The lectures will speak for themselves.

The whole affair, from beginning to end, was a brilliant success, and no one regrets being there. Now for Cleveland!

PROCEEDINGS

Of the National Photographic Association of the United States.

The first annual Meeting and Exhibition of the National Photographic Association of the United States, was held in Horticultural Hall, Boston, Massachusetts, beginning at 2 p. m., Tuesday, June 1st, 1869, as per arrangement of the Executive Committee.

The meeting was called to order by the President, Abram Bogardus, Esq., of New York, after which, G. H. Loomis, Esq., President of the Boston Photographic Society, and Local Secretary of the National Photographic Association, delivered the following *Address of Welcome:*

Mr. President and Gentlemen: The very pleasing and agreeable duty has been assigned me, of extending a cordial welcome to you at this early stage of your proceedings, and this I do in behalf of the Boston

Photographic Association, with whom I have the honor to be officially connected, and also in behalf of the citizens generally, among whom, I trust, you will be received with that kindness and cordiality which usually characterizes their intercourse with visitors from abroad. I need not assure you, gentlemen, that we appreciate the compliment intended by selecting our city as the place for inaugurating this grand enterprise, and, if it shall fail of that success which you hope to achieve, we earnestly pray that it may *not* be because of its New England origin, or because it was a "Boston notion."

While the representatives of various other trades and professions have, within a few years past, resorted to organization and associated effort, to improve themselves in the several branches of industry they follow, it has remained, until the present, for the Knights of the Camera to confederate for like purposes, and yet, may we not hope that our somewhat tardy entrance into the brotherhood of the associations, will only serve to make us more diligent in the pursuit of those advantages which associated enterprise is more likely to afford. While we would not be unduly "puffed up" with the relative importance and utility of the profession we practise, and with all due deference to our sister arts and artists, we believe it is usually conceded that photography stands to-day "master of the situation," and from it, directly and indirectly, the chisel of the sculptor, the pencil of the painter, and, we may add, the pen of the poet, are deriving their greatest triumph. Altering Shakspeare slightly, we quote:

> "The poet's eye in a fine frenzy rolling,
> Doth glance from heaven to earth, from earth to heaven,
> And as imagination bodies forth
> The form of things unknown, the Camera Obscura,
> Turns them to shapes, and gives to airy nothing
> A local habitation and a name."

A friend of mine, now travelling in Europe, justly observes that his collection of stereoscopic and photographic views, purchased and studied previous to his departure from home, provide him with the best guidance to all localities of interest, and, on his return, will possess a double value as a descriptive history of his travels. This, my brother artists, is but an item introduced to show the boundless field over which we are privileged to obtain conquest. I say boundless, for there are wonders celestial and terrestrial to be discovered, developed, and made intelligent and comprehensive to the people through the agency of this beautiful branch of the sciences.

Already has its usefulness been tested and appreciated in the manner indicated, by gleaning from the world at large all its special points of interest and attraction, and placing them with marvellous accuracy and distinctness, within the means of the masses to possess and enjoy. Through the medium of the press, we read of a "noisy world, its busy fluctuations, and its vast concerns," but photography brings us face to face with persons, places, and things, making us almost oblivious to the fact that oceans, rivers, and mountains separate them and us from each other.

But a few years since it would cost a small fortune and a year's voyage around the world to see what is now provided us for the small outlay of twenty-five cents. The persevering artist has penetrated beyond the pale of civilization, and almost by magic has grouped its scenery, illustrated its astronomy, geography, topography, mineralogy, etc., returning only when the wonderful and curious in nature and art are covered by his focus-glass, and nothing is left to view.

You see him on the ocean, catching views of fleets and armies, then in the North seas, portraying its icebergs, then at the North Pole, making views of the earth's axis. Again, you find him at the Equator, defining the "equinoctial line;" next, you see him at the Straits of Gibraltar, and not unfrequently in other straits more difficult to pass; then, upon the snowy sides and summits of the Alps, the Apennines, and Himalayas. If you visit any or all of the islands of the sea, you will notice the bodily presence of the ubiquitous photographer, though his head is often obscured. Go up the Nile or down it, if you please, and on either side you will find cameras, like so many cannon, mounted to salute you in passing. If, at Cairo, you stop to view the wonderful sights and scenes of antiquity, you will find at the base, or at the summits of the highest of her everlasting domes, the Yankee artist, waving in triumph his head-cloth or light-exterminator, exclaiming "Eureka!"

In the desert you can track him behind, beside, or in advance of every caravan; and though he "hunger and thirst," he still lives, for the sunshine is his strength and support. In Palestine, Jerusalem, on the Mount of Olives, at the Church of the Holy Sepulchre, in Bethlehem, in Nazareth, at Canaan and Capernaum, Sodom and Gomorrah, at the River Jordan, in the Wilderness of Judea, among the cedars of Lebanon, at Tiberias, Galilee, Philippi, Asia Minor, China, Japan, here, there, elsewhere, and everywhere, you will find the artist gleaner, and his rich trophies and treasures are, as I have before remarked, laid on our tables to be taken up and studied at pleasure. Great, glorious, beautiful, and useful discovery! Wonderful in its perfection, and yet, doubtless, in its infancy.

I have thus far only alluded to this minor branch of the art, and have said nothing of those which pertain to portraiture. Here I might dwell, until your patience was weary, upon the splendid achievements of artists, both in our own country and Europe. One of the best points I can make, however, in this connection, is by pointing you, and the public you serve, to the pictorial adornments of Horticultural Hall. Each production will there speak its own praise, or, if caricatured, woe to the artist from whom the offence cometh! Gentlemen, though it may be that you have contributed but a tithe of the many meritorious works your several collections contain, yet we and you may well be proud of the display. It shows that you have studied to please, and, that you have succeeded, there is abundant evidence in proof. Your competition in this Exhibition is eminently friendly, is praiseworthy, and, if a comparison of the products of your skill and ingenuity shall serve to awaken in each of you a nobler ambition for higher attainments, then will this pleasant gathering culminate in mutual good to the profession, and advantage to the art you have so enthusiastically practised.

Mr. President and Gentlemen, we invoke upon your proceedings and deliberations, that wisdom and foresight essential to your future success and prosperity, and we bespeak for the National Photographic Union, now holding its first session, a career of usefulness commensurate with its elevated aims and high resolves.

Let us hope that nothing but the true artist and the true gentleman will animate its membership, and that we may have no other strife among us save that of striving to excel, and that our highest endeavor may be to ennoble and dignify our calling.

Gentlemen from abroad, permit me again most heartily to welcome you to the city and surroundings of Boston, for, though passionately fond of the "Hub," we are not unmindful of the spokesman and felloes that are round about us, and which contribute materially to our consequence as citizens and as a city. We welcome you to our walks and drives, and, though our ways are at present a little serpentine and angular, and, withal, narrow, you will see that the municipal cleaver is fast hewing them wider and straighter.

Welcome, also, to our educational and benevolent institutions, to our halls of science, music, and to our galleries of art, which we hope you will find worthy of your attention and admiration. Observe the almost completed Coliseum, Temple of the Muses, where, in a few days, will resound the sublimest strains of music, in honor of the blessing of restored peace to a grateful country. Welcome to our beautiful harbor, the great American "teapot" of Revolutionary times, and, under its exhilarating influence, sail down among its picturesque islands, passing its somewhat diminutive but decidedly damaging fortifications, and if, on your return, you have time and appetite for other attractions, a new and not less interesting programme will be provided.

Again, gentlemen, welcome.

Mr. Loomis was frequently applauded

during the delivery of his address, which was followed by President Bogardus in the following response:

ADDRESS OF PRESIDENT BOGARDUS.

My Brother and Gentlemen of the Boston Photographic Association: It gives me pleasure to respond to your address of welcome, representing, as we do, the photographers of the United States, and many of us for the first time visitors to your busy city. We must feel gratified at your cordial words of welcome, expressing, as they do, feelings of friendship and kindness in every sentence. We come, as earnest men and for our mutual good, to consult for the advancement of our beautiful *art*, for which I will claim a high standing among the fine arts. Our Exhibition will show an amount of taste, skill, and ingenuity, well entitling it to such claim.

When this Association was inaugurated at Philadelphia, it seemed the day of small things; but I had *faith* in the few noble originators of the movement, and we can to-day rejoice at its success. I have never seen (considering the shortness of the time we have been associated together, and the peaceful nature of our profession) a greater success. Let us push on to still higher triumphs.

It has met opposition, but to a man or an association of nerve, opposition is but the incentive to greater achievement.

You have alluded to the Boston tea-pot. Sir! everlasting honor to the men that inaugurated the liberty in Boston harbor, that was baptized in blood at Lexington. At that day every man that was a man, felt it his duty to join the movement that was to drive despotism from the land. And so may we at Boston give our infant, born at Philadelphia, to-day grown to manhood, such an impetus, that every photographer in the land will needs join us for his own and the mutual good. Some of our fingers may be stained by the chemicals we use in manipulating, but I trust our hearts are not stained by one selfish or unworthy motive. Again accept our thanks for your cordial welcome, and wherever it may be our decision to hold the next annual meeting, may the photographers of Boston receive a welcome as noble.

The President was loudly applauded by the gentlemen present, and the business of the Association was proeeeded with.

The calling of the roll was laid over until later in the session.

The Secretary read the minutes of the meetings held in Philadelphia in December, 1868; which were approved as read.

The Treasurer, H. T. Anthony, Esq., reported a balance in the treasury of $569.37.

His report was accepted and referred to an auditing committee, of which Messrs. James Cremer, A. J. Fox, and N. S. Howe, were appointed the members by the President.

The report of the Committee on the Progress of Photography was called for, when the Secretary read the following letters from members of that committee:

To the Officers and Members of the National Photographic Association.

Gentlemen: At the last meeting of your Association, held in Philadelphia, a committee was appointed to report upon the Progress of Photography.

Owing to the members of that committee being very much scattered, it has been impossible to have a meeting for the purpose of organizing. But at the suggestion of your Permanent Secretary, a number of letters have been written to a majority of the members, stating that a report would be desirable at the meeting to be held at Boston, in June next.

But little attention has been paid to the communications; probably by reason of the short notice given (May 17).

It is to be regretted that more time was not given, as the names upon the committee justify the hope of a very interesting report.

The subject of the Progress of Photography is of the greatest importance to both professional and amateur photographers. And no doubt all are strong alike for its elevation and advancement.

In regard to the quality of American work, there has been a steady improvement in all branches of photography, extending over a large portion of the United States. Much better portraits are made, and greater attention paid to lighting the sitter, and not the entire room, as was formerly done. As an example, the Rembrandt style of picture is rapidly gaining popularity, and is doing much to make photography recognized, artistically, as one of the fine arts.

In landscape work, also, a marked improvement has been made. New lenses, and more perfect camera boxes, have added much to the success of out-door pictures. One improvement that may be mentioned in the chemical manipulation of both branches of photography, is less of the black and white picture, and more softness. This is fully proved by the cabinet, stereoscopic, and larger work prepared recently.

The writer does not feel that he has any authority to enter into the details of any particular process, as the committee he represents has not organized; but, as one of that committee, he takes the liberty of making a very short report, to show to the National Photographic Association that they are not forgotten.

Respectfully,
John C. Browne.

Philada., May 27th, 1869.

"I would suggest the following as being real progress, which is not always invention, but sometimes elimination or simplification. I consider, and have proved, that the preliminary coating with the albumen, which at last seems to be generally, and by successful operators used, is an improvement, as a row of unused bottles of rottenstone, and a very small alcohol bill, amusingly testify. The operator is no longer subject to a slovenly boy, or uncertainty in his plates, etc.

"The next I think is in developing the plate. How many text-books still instruct the operator to 'keep the plate constantly in motion!' While, if it was more generally followed, as written out by G. Wharton Simpson, to keep the plate as still as may be, and preserve an even flow of the developer, more pictures, full of half tints, and seeming as though touched upon the whole surface like an engraving, would be produced. This I have proved daily, and the public taste is still gradually accepting it, and is a progress.

"The only other one I have in my mind, is the toning bath, which I have in use daily, which I got from F. Rowell, Boston. There can be nothing simpler. It never varies, and lasts continuously, as my own was thrown away from accident. A stock-solution of gold (1 gr. to oz.) is poured upon bicarbonate of baryta. According to the average day's work, for each sheet of paper, one grain of gold proves *abundant.* When ready for toning the prints, pour from a bottle containing a saturated solution of carbonate of magnesia (in water), as much as will be needed to cover the prints; add the gold, and proceed to tone. It never fails, never discolors, never 'cuts up' and 'acts bad.' The baryta neutralizes only the acid, if any there be in the gold. The carbonate of magnesia is simple, and sufficient to keep the gold from falling.

"Unless these are included in our progress, I hardly know what to make a report upon. The current journals are full of new things, to be tried; but real progress seems to be in relieving the art of much that is superfluous, or that tends to complication.

"I have tried, also, the McLachlan theory—have a bath and collodion, using usual developer—and can report favorably upon, with negatives taken of an interior.

"Permanganate of potash, I think, cannot be called *progress.* It is good in my hands, but I think requires a little more skill than operators like to exercise; and, after all, is a complication to introduce into a bath.

"Carbon I do not favor. It is *glue*, and *glue* is treacherous. It is animal matter, and uncertain. I have worked it, and have a complete outfit for it, and have read nearly all that comes out upon it in the English *Photographic News* and *Philadelphia Photographer*, etc.

"Collodio-chloride I am testing, but as yet cannot report completely, as I am not successful in some points.

"Very respectfully, yours,
"Charles T. Miller.

"Prov., R. I., May 21st, 1869."

The communications were accepted and ordered to be filed.

From Mr. David Bendann, appointed as a committee of one, at the December meeting, to prepare by-laws for the Association, was read the following communication:

The undersigned was directed to prepare a series of by-laws, to be laid before the present meeting, but upon a careful investigation, finds all the necessary rules embodied in the constitution.

I desire, however, to present the following points for your consideration.

1st. The providing of a sinking fund, which shall be devoted to purposes of a beneficial character, in aid of the family of deceased members of the Association.

2d. A system of apprenticeship, to be determined upon and rigidly adhered to by members.

3d. The formation of a collection of photographic productions, to be added to by the voluntary contributions of members and others.

All of which is respectfully submitted.

David Bendann.

London, England, May 19, 1869.

After the reading of these reports the President addressed the meeting in a few congratulatory remarks.

After his address the President appointed the following gentlemen as a committee, to nominate officers for the coming year:

G. H. Loomis, Walter C. North, E. T. Whitney, H. G. Fetter, J. F. Ryder, F. W. Hardy, and Andrew Simpson.

As a committee on revising the constitution, Edward L. Wilson, J. K. Bundy, J. F. Ryder, James Cremer, and Walter C. North.

The roll was then called by the Secretary, the members standing as they answered, in order that they might be known to each other; after which an intermission was given to enable those present, who were not members, to become such, and for members to pay their annual dues.

A number became members.

The meeting was then called to order, and after the President announced that he would deliver his annual address at the next session, adjourned until next day at 10 A.M.

The members then repaired to the Exhibition Hall, to enjoy the grand collection there.

Wednesday, June 2d, 1869.

The Meeting assembled at 10, A.M., President Bogardus in the chair.

The rough minutes of the previous meeting were read and adopted.

The Committee on Revising the Constitution reported progress.

The Committee on Nomination of Officers reported the following nominees for officers of the Association for the ensuing year:

President.—Abram Bogardus.

Vice-Presidents. — Samuel Holmes, New York City; G. H. Loomis, Mass.; William H. Rhoads, Pa.; Alexander Gardner, D. C.; Edgar Decker, O.; A. Simson, N. Y.; H. G. Fetter, Ind.; J. Cadwallader, Mich.; A. J. Fox, Mo.; P. B. Jones, Iowa; P. H. Wheeler, S. C.; F. W. Hardy, Me.; W. E. Bowman, Ill.

Executive Committee. — David Bendann, Baltimore, Md.; J. F. Ryder, Cleveland, O.; J. W. Black, Boston, Mass.; W. C. North, Utica, N. Y.; J. Cremer, Philadelphia, Pa.; Edward L. Wilson, Philadelphia, Pa.

Treasurer.—H. T. Anthony, N. Y.

Committee on Progress of Photography.—J. C. Browne, Philadelphia, Pa.; Charles Wager Hull, N. Y.; John Carbutt, Chicago, Ill.; Charles T. Miller, Providence, R. I.; G. H. Fennemore, Philadelphia, Pa.

The report of the committee was accepted, and the committee discharged.

On motion, there being no further nominations, an election of officers was held by acclamation, and all the nominees of the committee elected, in the order in which they stand, unanimously.

The President responded in a very happy address, closing with his annual report. He thought the Exhibition in the upper hall, the number of photographers assembled at this meeting, the spirit of kindness and cordiality with which they treated each other, and with which the strangers were received by the Boston fraternity, were all proofs conclusive that we now had a real, live, working Association, that was a credit to our profession. He hoped that every member would make it his duty to interest others in the welfare of the Association. More strength was what we wanted—*numbers*—and then we could look forward to the consummation of great good. He did not believe there was a man present but what felt proud and overjoyed that he was a member of the National Photographic Association of the United States. He did, and he believed all were like him in that respect. (Applause.)

Since the meeting in Philadelphia, the birth-place of the Association, in December, 230 members had been added to the roll. Ere the next meeting, he believed we would have 1000. Let all strive to this end, and photography would soon reach the prominence which all its earnest votaries desired that it should reach.

The President was followed by Mr. Loomis, in a eulogy upon the Exhibition. He thought it an Exhibition which the photographers of the United States had great reason to be proud of. Almost every variety of work known to the profession was there represented. It predicated a bright and prosperous future for American photography, and proved that the fraternity was *awake*.

A discussion then ensued on the propriety of creating a fund, to be placed in the hands of a committee, for the purpose of opposing fraudulent patents.

A motion was made to appoint such a committee, when Mr. Wilson stated, that, as a body, we had no right to organize against any patent, as it would be a penal offence so to do. When an unjust or fraudulent patent comes to the notice of any member of the Association, he should report it to the Executive Committee, and they would manage for the best interests of the whole membership. A patent could be successfully and legally resisted by one person only.

If matters of that nature were brought promptly to the notice of the Executive Committee, including processes offered for sale by travelling agents, they would as promptly report upon them as to whether they were worthy of credit or not, in the official organ of the Association. Then, if inventors studied their interests, it would be their wisest plan first to secure the approval of the Executive Committee, before pushing the sale of their inventions.

This plan, vigorously followed, would soon cure the sale of worthless processes.

The motion was then withdrawn, and the discussion ended.

The Secretary, at the request of the Committee on Revising the Constitution, then distributed copies of the Constitution among the members, read the Constitution, article by article, and recorded suggestions for alterations, made by those present, for the guidance of the committee.

The main discussion was on the best method of simplifying the form of admission of members, that form being rather complicated now.

Several other suggestions were made, and noted by the secretary of the Committee.

The Secretary then read the following communication:

NEW YORK, May 29th, 1869.

MR. E. L. WILSON,
Secretary National Photographic
Association of the United States.

DEAR SIR: We are glad to learn that the Association of photographers are soon to meet again in council and fellowship. As such meetings are always attended with considerable expense, we beg herewith to inclose our check for $100, towards defraying the same. Trusting that the deliberations of the Association may result in much good to the fraternity at large, and with best wishes, we are,

Yours, truly,
SCOVILL MANUFACTURING CO.

SAMUEL HOLMES, Agent.

This was received with great applause, and a vote of thanks tendered the Scovill Manufacturing Company for their thoughtful and splendid donation.

On motion, adjourned to Thursday, ten o'clock, A.M.

Before adjournment the members were invited, by Mr. J. W. Black, to assemble at the bridge in the public garden, to have a group taken at 9 A.M. to-morrow.

They were also invited, in the name of the stockdealers of Boston, Messrs. G. S. Bryant & Co., B. French & Co , and Dodge, Collier & Perkins, to take a ride in the suburbs to-morrow afternoon at two o'clock.

Both invitations were cheerfully accepted and applauded.

THURSDAY, June 3d, 1869.

This was a day of surprises and pleasure. The members of the Association, agreeable to previous arrangements, met at the bridge in the public garden, at 9 A.M., to have a photograph of them made in a body, by Mr. J. W. Black and his assistants, Messrs. Nickerson and Smith. Two successful negatives were made in a very short time, although the sun was shining full upon the group.

After the pictures were taken, an examination was made of Mr. Black's out-door dark-room. It consisted of a large box, with all the necessary appurtenances, made portable, so that it could be lifted into any wagon, and moved wherever needed.

The business meetings of the Association were continued at 10 A.M., at the Hall, President Bogardus in the chair.

The records of the previous meeting were read and approved, after which the roll was called.

A recess was then taken, to enable parties present to pay their annual dues to the Treasurer, and to become members.

Mr. Southworth, of Boston, addressed the members, upon the stereoscope, explaining the result of his experiments in making pictures for this instrument. He referred to the statement of Sir David Brewster, that no one could see anything perfectly unless he had a circle of eyes, and gave scientific reasons why this could not be true. He explained that the two pictures which unite to make a perfect stereoscopic picture should be taken at an angle of forty-five degrees, that being about the angle formed by the two eyes of the beholder of these pictures and the focus of vision.

Mr. E. L. Wilson, on behalf of the Committee on the Constitution, reported the following alterations, which were taken up singly and then adopted as a whole, as follows:

BOSTON, June 3d, 1869.

Officers and Members of the
Nat. Photo. Assoc. of the U. S.

YOUR Committee, appointed by you to revise the Constitution of this Association, beg leave to suggest the following alterations of the articles mentioned below, and the adoption of the annexed code of by-laws:

Article II, Section 2, to read as follows: The mode of admission to membership shall be as follows: Any person eligible to membership may apply in writing, inclosing the amount of initiation fee and dues for the current year, to the Permanent Secretary, who shall thereupon send him a receipt and certificate of membership.

Article II, Section 3: No person shall be considered a member of this Association until he shall have signified his approval of the Constitution in writing, and paid into the treasury the sum of two dollars as an initiation fee, and two dollars additional for his annual dues. The initiation fee of employees, however, to be one dollar, and annual dues one dollar additional in advance. All persons who become members shall be considered as permanent members, but may be expelled for improper conduct by a vote of two-thirds of the members present at any annual meeting.

Article II, Section 4: Every member shall pay his dues annually, June 1st, into the hands of the Treasurer, and is liable to lose his right to membership by neglecting to pay said dues for two successive payments.

Article II, Section 5: Strike out the words "but no resignation shall be accepted from any one who is in arrears to the Treasurer."

Article II, Section 6: Strike out the words "upon the same conditions and under the same rules as appertain to active members."

Article III, Section 6: After the word "meetings," page 7, insert "and to employ assistants when necessary, at the expense of the Association."

Article III, Section 7: Strike out the words "chairman of one of the committees authorized to appropriate the funds of the

Association, such order to be countersigned by the." Same section: After the word two, insert "successive payments. In case of the absence of the Treasurer, he shall appoint a deputy, with power of attorney, to fulfil his duties."

Article IV, Section 1: Strike out the words "the former" and "and the latter ten," and insert the word "each" before the words "to consist."

Article IV, Section 2: Strike out the words "the investigation of applications for membership."

Article IV, Section 3: Strike out the words "some designated journal published in the interests of photography," and insert, in lieu thereof, the words "the official organ of the Society."

Article V strike out entirely, making present Article VI to read as Article V.

BY-LAWS.

ARTICLE I.

OF MEETINGS.

SECTION 1. The annual meetings shall be held, each year, the first Tuesday in June, unless otherwise ordered, at such place as the Association may determine.

SEC. 2. Special meetings of the Association may be called by the President, with the advice and consent of the Executive Committee, whenever deemed expedient.

ARTICLE II.

QUORUM.

SEC. 1. Twenty-five members shall constitute a quorum for the transaction of the business of the Association.

ARTICLE III.

ORDER OF BUSINESS.

SEC. 1. Calling the Meeting to order.

SEC. 2. Calling the roll of members.

SEC. 3. Reading minutes of last meeting.

SEC. 4. The reports of the standing and special committees, which shall be read by their titles or in full, and laid on the table for future consideration.

SEC. 5. A committee to nominate officers for the ensuing year shall be appointed, to report at the opening of the next session.

SEC. 6. Miscellaneous business.

SEC. 7. The first session shall close with the reading of the President's annual report, and referring to appropriate committees any portion requiring the action of such committees.

SEC. 8. After the first session, the order of business shall be determined by the nature of the subjects presented, and by the will of the majority.

SEC. 9. All questions, except the election or expulsion of members and election of officers, may be determined by yeas and nays, or by a division, if necessary.

SEC. 10. Any motion duly made and seconded shall be proposed by the President, and shall then only be debatable.

SEC. 11. A motion reduced to writing and seconded, shall be open to discussion, and while it is before the Association, no motion shall be received, unless to amend, divide, commit, to lay on the table, postpone, or adjourn, and a motion to adjourn shall be decided without debate.

SEC. 12. Any member who may desire to speak on any motion or resolution, shall, standing, address the President, and shall confine his remarks to the question at issue, avoid any offensive or personal remarks, and shall not speak more than once, and then not more than ten minutes upon the same subject, unless by permission of the President.

SEC. 13. No member shall be interrupted while speaking unless by a person rising to a point of order decided by the President.

SEC. 14. During periods fixed for scientific discussion and the exhibition of specimens and processes, the ordinary rules of parliamentary bodies shall be suspended, but at other times shall be enforced by the presiding officer.

ARTICLE IV.

ELECTION OF OFFICERS.

SEC. 1. The election of officers shall be conducted by balloting, unless otherwise ordered, and a majority of the votes cast shall be necessary to a choice.

SEC. 2. All persons elected officers shall signify their acceptance or notify the Secretary within one month after their election.

ARTICLE V.

VACANCIES, HOW FILLED.

Sec. 1. In the event of a permanent vacancy in any office or in any standing committee, except in the office of President, the vacancy shall be filled by the President.

Sec. 2. In the event of a permanent vacancy in the office of President, one of the Vice-Presidents, in the order of their names, shall assume the duties of President until the next annual election.

ARTICLE VI.

The majority rules in all cases except otherwise provided for in the Constitution or By-Laws; and when in these By-Laws there is mention made of the will or determination of the Association, it must be understood as that of the majority.

ARTICLE VII.

This Association may from time to time enact such by-laws, rules, and regulations as it may deem proper for its good government. Provided, such by-laws, rules, and regulations shall not be inconsistent with the provisions of the Constitution.

Very respectfully,
W. C. North, Chairman.
J. F. Ryder,
J. K. Bundy,
James Cremer,
G. H. Loomis,
Edward L. Wilson.

The question of the time and place of the next annual meeting was discussed at length, and it was finally voted unanimously to hold it at Cleveland, Ohio, on the first Tuesday in June, and Mr. J. F. Ryder was chosen Local Secretary.

The death of Mr. J. B. Roberts, of Rochester, was announced, and a committee of three appointed to report suitable resolutions to the meeting to-morrow. The meeting then adjourned until 10 o'clock Friday morning.

Afternoon.

The members of the Association assembled at Horticultural Hall at 2 p. m., and were called to order by President Bogardus. He said that his visit, in common with his brother photographers, to Boston, had been a continued round of pleasure, and now a very pleasant duty devolved upon him. At the last meeting of the Association a committee had been appointed to take into consideration the propriety of making Mr. Edward L. Wilson, Permanent Secretary, some suitable acknowledgment for his energy in furthering the cause of the Association since its conception, and in fighting for the rights of its members in the Bromide Case, and that committee had chosen this occasion as a fit opportunity to make their report.

Mr. Wilson was then called to the platform, and received from the hands of Miss Nellie M. Whiting, on behalf of the committee, a magnificent solid silver ice pitcher and salver, manufactured by Messrs. Bigelow, Kennard & Co , silversmiths, Washington Street, Boston.

The recipient stated that he was so completely surprised that he could only tender the heartiest thanks to the members of the Association for their extreme kindness. Had their bright and beautiful testimonial been many times less weighty and valuable, it would have been quite as precious to him. When working for the Association he felt that the eyes of its members were rigidly upon him, watching if he were true to his trust or not. Success was what he worked for; success in accomplishing their hopes and wishes. Success had been his rich reward, and he felt amply repaid. But since he had been so handsomely remembered he would return his best thanks, promising to be ever ready to defend them in any just cause. He would hold this magnificent testimonial in trust for them to make it into nitrate crystals, in order to maintain and uphold the dignity and prominence of our blessed art should such an extremity arise. Again, very, very many thanks.*

Mr. G. H. Loomis, Local Secretary of the

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* The committee having the affair in charge, thinking afterwards that some other article would prove of more practical utility to their Secretary, substituted for the silver a very handsome Steinway piano, from Messrs. C. D. Russell & Co., which was presented by the committee privately.

Association, then informed the members present that Messrs. George S. Bryant & Co., Dodge, Collier & Perkins, and Benjamin French & Co., stockdealers of Boston, had generously provided barouches to give the strangers an opportunity to take a drive through the suburbs.

The Association adjourned to Tremont Street, where twenty-five handsome barouches were in readiness, in which they embarked, and were driven to Brookline and around the Chestnut Hill Reservoir, through a portion of Brighton, Newton, and Watertown, to Cambridge, where a brief halt was made at the residence of Mr. J. W. Black. Notwithstanding the visit to his residence was an entirely impromptu affair, Mr. Black at once spread before his guests a bountiful collation, after partaking of which they were shown over the residence and studio of Mr. Sharpe, father-in-law of Mr. Black, in a building immediately opposite. Here a brief period was spent in inspecting a large number of very beautifully finished paintings and photographs. Before leaving Mr. Black's hospitable residence, the company gave him three cheers and a "tiger," and re-entering their carriages they were driven through Cambridge, past the Colleges, to East Cambridge, to the residence of Mr. G. H. Loomis, who, determining not to be outdone in hospitality, prepared in a short time a very inviting collation, to which the guests were welcomed with true hospitality. Before leaving his roof, the company gave Mr. Loomis three hearty cheers for his kindness.

Again embarking, the Association were driven over Charles River to Charlestown, passing around Bunker Hill to City Square. At the Waverley House they were again invited to accept the hospitality of Mr. Blaisdell, of the firm of French & Co., and ere they left, they extended to him the same recognition of his kindness as had been bestowed on his predecessors in hospitality. For the third time the party re-embarked, and reached Horticultural Hall at about 7.30.

To every member of the party this trip gave an opportunity for the first time to see the beautiful suburbs of Boston, and the strangers were profuse in their expressions of gratification at the constant succession of beautiful scenes through which their drive had taken them, and also at the munificent treatment of their entertainers, which gave to the members of the Association from the West a taste of genuine Yankee hospitality.

The whole day was one of unclouded enjoyment, and the gala day of the week.

In the evening the Exhibition and Dr. Boynton's lecture made up a brilliant programme, never to be forgotten by those privileged to enjoy it.

Friday, June 4th, 1869.

The meeting was opened at 10 A.M. Mr. G. H. Loomis, Vice-President, being in the chair. He announced that President Bogardus had been called home yesterday by unavoidable engagements.

The reading of the minutes was dispensed with, and a number of resolutions read and adopted, viz.:

Of thanks to Prof. Towler and Dr. Boynton for their admirable, instructive, and valued lectures; "denouncing the claims of the Shaw & Wilcox Company as fraudulent, unjust, and unworthy of credit by the profession;" of thanks to Messrs. B. French & Co., G. S. Bryant & Co., and Dodge, Collier & Perkins, stockdealers of Boston, for their delightful entertainment; of thanks to Messrs. Black, Loomis, Allen, Marshall, and others, for their sacrifices in behalf of the Association; of thanks to Messrs. C. D. Russell & Co., for the use of Steinway pianos; of thanks to Mr. J. W. Black and his assistants, Messrs. Nickerson and Smith, for making the group of the members; of thanks to Mr. G. H. Loomis, the efficient Local Secretary of the Association; and a resolution that every member who attends the next meeting at Cleveland, bring enough of his *cartes* with him to exchange with the others.

Mr. Loomis responded to the resolutions in his behalf in a brief speech.

Mr. Wilson moved that a committee be appointed to memorialize Congress in behalf of the Association, to charter the Association; for a just copyright law, and for the admission of photographs for our annual exhibitions free of duty and custom-house fees.

We need to be chartered; there virtually existed no law for copyrighting photographs, and much delay and annoyance had been caused recently in receiving parcels from abroad for exhibition. They were held for appraisement at the custom-house, while for the encouragement and growth of art they should have been passed free and without delay.

Messrs. Alexander Gardner, Daniel Bendann, and H. T. Anthony were appointed a committee for the purpose mentioned in the motion.

Mr. Loomis said he hoped to have secured an arrangement with the Express Companies by which exhibitors could have their goods returned free, but he had not succeeded.

Mr. Ryder moved that a committee be appointed to make arrangements for repacking the articles on exhibition. Messrs Whitney, Carbutt and Jones were appointed that committee.

A discussion was opened on the expediency of starting a beneficial branch of the Association, for aiding disabled photographers and the families of deceased members.

Many plans were offered by Messrs Albert, Jones, Bundy, Potter, and others. The discussion was interrupted by the appearance of his honor Mayor Shurtleff, Mayor of Boston.

The regular order of business was suspended, and his honor introduced to the members of the Association by the Secretary.

He briefly addressed the Association in an informal and friendly manner. He thanked the Association for honoring Boston by holding in this city their first National Exhibition. Boston was a patron of the fine arts, and possessed the oldest Art Academy in the United States, the Athenæum, which was established in 1780. They would find Bostonians a compact, social set of people; had many notions, but they were notions based on the cultivation of kindly and friendly relations with all the people of our country. He trusted that the members of the Association would be enabled to gratify their curiosity to see all that was worth seeing in our city. He complimented the art and the Exhibition in the highest terms.

At the conclusion of his address he was warmly applauded, and a resolution of thanks immediately offered for his kindness in visiting the meeting; and his honor retired.

The regular order of business was then resumed and also the discussion. It was finally resolved that a committee be appointed to devise means for the establishment of a relief fund, to report at next meeting.

It was resolved that a full list of the members of the Association and their addresses be published in the official organ, with the proceedings.

Mr. H. T. Anthony, Treasurer of the Association, here arose and stated that it was his desire to cancel the debt of $500 due him by the Association, for money loaned to prosecute the opposition to the extension of the Bromide Patent.

His generous offer was received with applause, and a vote of thanks, heartily given, followed.

Mr. Frederick C. Low, Chairman of the Committee to draft Resolutions on the decease of our fellow-member, Mr. J. B. Roberts, Rochester, N. Y., reported as follows:

Whereas, By the will of Divine Providence, our brother and co-laborer, J. B. Roberts, of Rochester, N. Y., has been removed from our midst, therefore

Resolved, That we feel that our profession has sustained a great loss in his death.

Resolved, That we deem it eminently proper to pay a fitting tribute to the memory of one who was known among us as a gentleman of undoubted worth and genial disposition, and one so earnestly devoted to our beautiful art.

Resolved, That our warmest sympathies are extended to his bereaved family.

Resolved, That these resolutions be placed on the records of this Association, and also published in the *Philadelphia Photographer*, and that a copy of them be forwarded to his family.

Frederick C. Low,
James S. Crawford,
J. Marsden Fox.

On motion of Mr. Cremer, it was resolved, that a copy of the photo-group of the Association, taken by Mr. Black, be handsomely framed, and presented to His Honor, Mayor Shurtleff.

The meeting then adjourned to 3.30 P.M. After its close, Mr. William Morgan Brown, of Paris, practically demonstrated Johnson's new carbon process, and explained Johnson's pantoscopic camera, both of which were received with great interest and attention.

Afternoon.

Mr. J. F. Ryder in the Chair. A very brief session was held in the afternoon at 3.30 P. M. The committee appointed to arrange for repacking the articles on exhibition reported that they had made all necessary arrangements, exhibitors being requested to contribute $1 each to pay for the same.

Mr. Anthony moved that $60 in the treasury on Bromide Fund account, be paid to Mr. Bogardus on account of loan. Carried.

The following were appointed as the Committee on the Relief Fund: W. Irving Adams, N. Y., Chairman; G. S. Bryant, Boston, A. F. Potter, Elyria, O., J. K. Bundy, New Haven, Conn., P. B. Jones, Davenport, Iowa.

The Association then adjourned *sine die.*

THE EXHIBITION.

THE Exhibition of photographs, apparatus, chemicals, etc., was held in the Upper Hall, which was admirably arranged by the committee in charge,—Messrs. J. W. Black, G. H. Loomis, E. L. Allen, and A. Marshall, assisted by the photographers of Boston generally.

A hall better adapted for the occasion could not have been chosen. Windows were on both sides, giving an abundance of good light. Wings were built up between the windows in the shape of a V, running out into the hall some twelve feet. Between these wings, uprights about ten feet wide were erected, both sides of which were also hung with pictures. The wings and the uprights were covered with brown cloth, as were also both ends of the hall, and which were also used for hanging. Down the entire length of the hall, in the centre, were wide tables, devoted to glass-cases, apparatus, furniture, lenses, chemicals, etc., etc.

The pictures were hung with good taste and care, considering the very short time allotted for the work, and the display was grand in the extreme. The hopes of the most sanguine friends of the enterprise were more than realized, fully and entire. Almost every branch of the art was represented, as well as all interests connected with it.

Those who were privileged to see it were unanimous in their praise of the Exhibition.

During each day and evening the scene was enlivened by the excellent playing on the piano, and singing of Miss Nellie M. Whiting. The pianos in both halls were manufactured by Messrs. Steinway & Son, New York, and generously furnished for the occasion, free of charge, by the obliging Boston agents, Messrs. C. D. Russell & Co., 126 Tremont Street. Their music added much to the enjoyment of the occasion.

It would be impossible to review the immense collection of pictures, etc., exhibited, within the limits of a magazine. The following is a list of the exhibitors as near as could be secured. Should any have been overlooked, the secretary will be glad to have it made known at once, and such shall be recorded. The list is made about as the pictures hung, beginning at the stage, which was mainly taken up by the foreign collection.

EXHIBITORS.

Ernest Milster, Berlin, Prussia. An assortment of portraits of various sizes from retouched negatives.

Loescher & Petsch, Berlin, Prussia. A case of cartes of children in various charming characters; a case of stereoscopic groups from life, and portraits of various sizes and styles.

Charles Reutlinger, Paris, France. Four large frames of cabinet and 11 x 14 portraits of ladies, gentlemen, and children.

Adolph Braun, Dornach, France. An immense variety of carbon prints, views in the Alps; studies from old cartoons; and flowers, birds, animals, etc., etc.

Fr. Bruchman, Munich. Reproductions from engravings, illustrating the works of Schiller and Goethe, the largest print being 30 inches by 48 inches in size.

W. Voeltzkow, Berlin, Prussia. Metallic pressed, and wooden frames.

Adam Salomon, Paris. A variety of 8-10 portraits of ladies and gentlemen.

Werner & Schumann, Berlin. Samples of matts, filters, card-mounts and card-cases of beautiful styles.

George Washington Wilson, Aberdeen, Scotland. A series of Scotch landscape views.

T. Edge, Preston, England. Double printed card portraits with natural landscape backgrounds.

Mr. Burgess, Norwich, England. Eburneum pictures in a variety of styles.

Herr Grune, Berlin. Burnt-in porcelains and china ornamentations by means of photography.

Lafon de Camarsac, Paris. Burnt-in enamels of various sizes.

J. F. Ryder, Cleveland, Ohio. Life-size heads and cabinet portraits from negatives, skilfully retouched.

L. Pattberg & Bro., New York. Passe-partouts, show-mats, and fancy frames.

Dodge, Collier & Perkins, Boston. Albums and frames in great variety.

N. T. Johnson, Boston. Finely colored porcelain pictures.

George Knell, Philadelphia. Combined chair and lounge.

George S. Bryant & Co., Boston. Photographic chair, prints on "medal paper," and photographic lenses.

Mr. Hazleton, Boston. Colored photographs.

Upson & Simpson, Buffalo, New York. A fine collection of portraits of various sizes.

Henry Merz, New York. A variety of admirable effects in portraiture and composition of various sizes.

George F. Wetherbee, Boston. Photograph of two dogs—"Dignity and Impudence."

G. Wenige, Boston. Colored photographs.

Wilson, Hood & Co., Philadelphia. Photographic tables, columns, vases, etc., and Wilson's photographic Rest.

A. H. Folsom, Roxbury, Massachusetts. Out-door views.

F. Hacker, Providence, Rhode Island. Large views of residences, animals, etc.

F. Kuhn, Boston. Burnt-in photographic enamels in colors.

P. H. Wheeler, Laurens, S. C. Varied portraits.

A. Marshall, Boston. Porcelain pictures and portraits of children.

Robinson & Cherrill, London, England. A large variety of art studies from nature, printed from several negatives, and distinctly different from aught else exhibited.

M. Tessie du Mothay, Paris. Photo-lithographs in great variety with half-tone.

Charles Albert, Munich. Photo-lithographs in great variety, with half-tone. Known as "Albertypes."

Thomas Gaffield, Boston. Leaf prints in admirable designs; feather and fern prints, and pictures illustrating the action of sunlight on glass.

W. C. North, Utica, New York. A variety of cabinet portraits.

Whitney & Beckwith, Norwalk, Connecticut. Stereos and large view landscapes and residences.

H. G. Smith, Boston. Copies of engravings.

F. L. Stuber, Bethlehem, Pa. Portraits, large and small, in beautiful variety.

T. R. Burnham, Boston, a large variety of paper and porcelain prints.

C. Soulier, Paris. A variety of Swiss views on paper.

O. H. Willard, Philadelphia. Glass transparencies.

G. L. Hurd, Providence, R. I. Life size solar prints.

A Bogardus, New York. Large and small portrait groups, etc., and the only daguerreotype in the Exhibition, made but a few days previous.

E. L. Allen, Boston. A large display of photographs of men, beasts, and places of all sizes—fine solar enlargements.

J. W. Black, a fine show of all classes and sizes of portraiture, colored and plain, singly and in groups, paper and porcelain. Also some admirable out-doors pictures, including two of the members of the National Photographic Association.

G. H. Loomis, Boston. Colored solar prints; a revolving stand showing a variety of sizes of portraits, plain and colored, and "The Sunbeam," a periodical published occasionally for his benefit and that of the public.

John A. Whipple, Boston. Porcelains, plain and colored; life size portraits in oil, and examples of almost every style of work.

J. J. Hawes. A panoramic view of Beacon Street, 30 feet long, and a variety of reproductions from engravings.

United States Government, Washington, D. C. Microphotographs in great variety, by Dr. George E. Curtis, Army Medical Museum.

E. Dunshee, Boston. Portraits in water color and India-ink.

Frank Rowell, Boston. Carbon and silver prints in beautiful variety.

William Aitken, Millville, New Jersey. A variety of portraits, plain and in oil colors.

John Carbutt, Chicago, Illinois. An admirable genre picture, colored, of a little girl, called "Into Mischief;" photographs of parts of diseased cattle, colored, cards, etc., etc.

"Alpine Club," Swiss and Savoyan views.

Schreiber & Son, Philadelphia. Photographs of horses, cattle, and dogs, admirably taken from nature.

J. Loeffler, Tompkinsville, S. I. Views of interiors and portraits.

R. E. Mosely, Boston. Microscopic pictures.

John A. Scholten, St. Louis, Mo. Exquisite burnt-in porcelains in colors, of great perfection; portraits in oil, and a variety of plain pictures.

J. H. Fitzgibbon, St. Louis, Mo. Interiors made with Steinheil's lens, and pictures made at night, of various sizes.

F. W. Hardy, Bangor, Maine. Porcelain pictures and out-door views.

J. Babb, Boston. Minette cards and other sizes of portraits.

M. F. King, Portland, Maine. Fine porcelain pictures.

D. R. Clark, Lafayette, Indiana. Views, group, cabinets, etc., etc., in variety.

Mrs. S. A. L. Hardinge, Brooklyn, New York. "Pearletta pictures," colored.

Charles Ernst Kreuger, New York. Photographic head-rest and photographic positions.

J. H. Bostwick, Bristol, Pennsylvania. "Rembrandt effects," of various sizes.

Angelo Cacchello. Large heads, etc.

A. N. Hardy, Boston. Cabinets and cards.

James Cremer, Philadelphia, Pennsylvania. Three plain and three colored 4-4 porcelain pictures, of very superior excellence.

R. Newell, Philadelphia, Pennsylvania. A view of "Stuart's Studio," and other out-door pictures of fine quality.

J. C. Browne, Philadelphia. Landscape enlargements by solar camera. Albert Moore, printer.

J. Gurney & Son, New York. Admirable photographs of various sizes; partly from retouched negatives.

A. C. Platt, Oberlin, Ohio. Views of buildings; the Tomb of Lincoln, etc.

A. J. Fox, St. Louis, Missouri. Beautiful cabinet portraits, in great variety of pose.

J. H. Kent, Rochester, New York. Plain and colored photographs of all sizes and styles.

Bendann Bros., Baltimore, Maryland, Portraits in oil and water colors, and a fine variety of plain prints.

A. S. Southworth, Boston. A great variety of photo-autographs.

V. G. Bloede & Co., Solaral Chemical Works, Brooklyn and New York. An excellent display of pure and beautiful chemicals.

H. Rocher, Chicago, Illinois. Cards, cabinet, and large-size portraits.

R. Waitz, Boston. Large heads and oil-colored porcelains.

Dr. H. Vogel, Berlin, Prussia. Views of the late Solar Eclipse, and the country at Aden.

M. de Constant, Lausanne, Switzerland. Collodio-chloride prints, fumed and unfumed.

T. M. Estabrook, Brooklyn, New York. Ferrotype of a lady.

Carl Borntraeger, Wiesbaden. Four cabinet subject pictures of the Mater Dolorosa, etc., etc.

J. Hubbard, London, England. Genre pictures: "Preparing for Dinner," "At the Toilet," and "Pensive Thoughts."

Walter B. Woodbury, London, England. Photographic relief prints on glass and paper, of wondrous excellence, and metallic plates for printing from.

Blunt & Co., Agents New York Optical Works. Hemispherical and other lenses; focussing glasses, etc.

American Optical Company, New York. Scovill Manufacturing Company, Agents. "Perfect camera stand," camera boxes, tripods, etc., of excellent quality and finish.

Scovill Manufacturing Co., New York. Union frames, velvet passepartouts, etc.

William H. Mountfort, New York. "Mountfort's Crystal Varnish."

Dr. Ed. Liesegang. Papyroxyline.

Willy Wallach, New York. Trapp & Munch's albumen papers of various kinds.

Benerman & Wilson, Philadelphia, Photographic Publications. Order and due-bill-books, etc.

E. & H. T. Anthony & Co., New York. Dallmeyer lenses, photographic varnishes, gun cotton, chemicals, etc., great variety.

F. G. Weller, Littleton, New Hampshire. Stereo views.

Hastings & Davenport, Boston. Gilt frames.

B. French & Co., Boston. Voigtlander and Jamin lenses, gem boxes, etc.

Charles Cooper & Co., New York. A display of beautiful chemicals.

Powers & Weightman, Philadelphia. A display of beautiful chemicals.

G. K. Proctor, Salem, Massachusetts. Apparatus for taking pictures and copying by magnesium light.

Simon Wing, Boston. Camera box, double ground glass for sky-lights, ferrotypes, and Wing's patent street sign.

L. W. Seavey, New York. Backgrounds and rock accessories.

J. E. Judd, Charlestown, Massachusetts. Multiplying camera.

R. Benecke, St. Louis, Missouri. Tent for out-door work.

W. & A. L. Hudson, Hingham, Massachusetts. Tent for out-door work.

Boston Journal of Chemistry. Copies.

Carl Meinerth, Newburyport, Massachusetts. Mezzotint photographs.

C. A. Kihlgren, Boston. Envelopes.

Holton & Robinson Bros. Ferrotypes.

C. H. Danforth, Cambridgeport, Massachusetts. Porcelains.

L. J. Marcy, Newport, Rhode Island. Photographic projector and copying apparatus.

V. M. Griswold, Peekskill, New York. Filter, drying rack, plate vise, spring-clip, and ferro-photographs.

David Duncan, New York. Photo-lithographs.

A. F. Clough, Oxford, New Hampshire. Stereoscopic views.

Davis & De Wolf. Magic Diamond.

C. J. Billinghurst, McArthur, Ohio. Card-mounter.

W. P. Slee, Poughkeepsie, New York. Card-mounter, and adhesive card-mounts.

John F. Nice, Williamsport, Pennsylvania. A variety of portraits; different sizes.

M. F. King, Portland, Maine. Photographic rest.

Miss Judkins, Boston. Oil paintings.

Joseph L. Bates, Boston. Stereoscopes and pictures.

The following were received too late for the Exhibition.

D. H. Cussons, Southport, England. Studio accessories and curtains.

Shaffner & Mohr, Paris. Prints on paper sensitized with carbonate of silver, and samples of paper.

Romain Talbot, Paris. Retouching frame, aniline colors, impermeable pans, and Carrier's ready sensitized paper.

Dr. H. Vogel, Berlin. Egyptian Photographs.

Rohaut & Hutinet, Paris. Photographic card-mounts. An exceedingly fine variety.

Loescher & Petsch and Ernest Milster, Berlin. Portraits and copies of paintings.

Johannes Grashoff. Prints showing the effect of retouching the negative.

Benque & Sebastianutti, Trieste, Austria. A number of large portraits retouched.

Wambrun, Quilitz & Co., Berlin. Photographic glassware, etc.

A Meydenbauer, Berlin. Photographs showing his plan of surveying by photography.

THE LECTURES.

The first of the lectures announced by the Executive Committee, was delivered in the lower hall on Wednesday evening, June 2d, by Prof. John Towler, M D.

Prof. Towler, after being introduced to the audience by President Bogardus, proceeded with his lecture on

CONCENTRATION OF WAYS AND MEANS.

UNITY OF ACTION.

The attainment to perfection in any art or science, the accomplishment of great deeds of valor, of virtue, and of religion; to arrive at the goal of political pre-eminence, to quell rebellion, to subjugate kingdoms, and to don the crown of an empire, requires less genius than discipline. This discipline consists in the acquisition of common sense, and the complete control of the mind, the morals, and the physical powers of the body; and is either *taught* or forced into our characters by experienced parents or teachers, or learned by our own idiosyncrasies. It was such a discipline that led Newton along the untrodden jungles of the firmament, that elevated Milton upon the heights of empyreal air, that found Kirchoff gamboling in the photosphere of the sun, that created the Napoleonic dynasty, that caused Niepce, Daguerre, and Talbot to paint nature with sunbeams, that urged on Washington to realize the idea of making man a self and independent governor, that gave us a Morse to ramify the world with talking-wires, and a Watt to traverse oceans and continents on the wings of steam.

Let us select, as an example, from the preceding references, and exhibit in relief, the peculiar qualifications of Napoleon, by means of which he ascended from zero to indefinite power. This man knew himself and the rest of mankind; he could subdue his own passions and yearnings for the moment, and could bide his time until the proper instant arrived to strike for victory. When the Revolution was tired of its own doings, and its leaders were in deadly conflict with one another, he saw that the moment had arrived. He seized the reins of the jarring forces, and made himself master of the Revolution, by concentrating all the scattered and antagonistic elements for the accomplishment of one object—ostensibly the glory of France; in reality the elevation of self to absolute dictatorship and imperial power. Guided by his knowledge of human character, and the discipline of his own character, victory followed him from the Escurial to the Pyramids of Egypt, from the Alps to the Kremlin; because, where he moved there was unity of action, and a convergence or combination of all the available troops of his own country and of the countries he had conquered. Whilst his enemies were lukewarm in their undertakings, and isolated in their actions, he whipped them one by one.

There is, perhaps, no lesson in history so instructive to the ambitious, as that of the successes of Bonaparte to the highest pinnacle of power, unless it be the remarkable history of his downfall. Both his elevation and his annihilation were brought about by the same or similar causes. His victories were the result of his own combinations, concentrations, and unity of action; his downfall was effected by the coalition of all the powers of Europe, and their unity of action against him.

It is possible that each of the individuals previously alluded to, was a genius; that is, so peculiarly constituted and endowed by nature, as to be pre-eminently suited for the accomplishment of the ends in view; but the results were attained by stern discipline; that thorough mastery of self, and enslavement of every thought and act to the effectuation of a given purpose. Such a discipline has no relationship with inspiration. It does not sit idle on a flowery bank, for the roasted partridge to fly by, and to desire the honor of being conducted down the œsophagus, but it vigorously embraces all means, far and near, whether easy or difficult, to discover the covey, and wing them in their flight. Discipline accepts no boon without compensation. Witness those noble characters that had to work their way, piecemeal, through colleges and through difficulties, to the highest posts in letters, medicine, and in law. There is no aim too distant, no task too hard for discipline to gain or grapple with. It was discipline that put those well-known words into the tongue of Archimedes: "Dos pou sto, kai tou kosmou kineso." By discipline we are taught the surest way of gaining victories in any branch. We go to universities for four years to get this discipline, and when we leave we are just girded around the loins, and equipped to begin to get knowledge. By discipline we learn and concatenate; by discipline we work and concentrate; by discipline we gain the goal.

The grandest lessons of concentration are derived from a study of the heavens; these "declare the glory of God," but they declare a great deal more. They were evidently not created for show, like the dazzling chandeliers of the theatre, or the glittering gems of a diadem; there is a design in their position, and an end accomplished by their motions; each orb has a special function to perform, independent in its internal government and organization, but dependent on all the rest in the consummation of some inscrutable purpose. The heavens constitute an assemblage of systems; each system is composed of numerous bodies, revolving round a central nucleus or counterbalancing orb; and each body has its innocent creatures, such as lambs, ladies, and doves, as well as its venomous reptiles and brutes, such as mastodons, men, monkeys, snakes, and crocodiles to constitute society; and the most insignificant specimen of vermin is covered with parasites, and so on to the end of creation. System on system, orb on orb, reptile on reptile, vermin on vermin, epizoa, zoa, and entozoa *ad infinitum*. All matter is in motion—all matter is alive! Thus the sun is the centre of one system: a stupendous aggregation of molten metals glowing, seething, hissing, bubbling, boiling, and bellowing far beyond all our conceptions of the sublime and awful, in the visions of poets and madmen. The stupendous masses descried floating on or above its surface, Kirchoff tells us, are clouds of metallic vapors, a welkin of iron, sodium, copper, and other metals, found on the earth itself. This sun is the great central storehouse of matter, of which the earth, the moon, Jupiter, Uranus, and the rest of the planets, were originally mere handfuls, thrown off from the surface by the spirits of the sun, or those villanous archangels that once rebelled against God. The handful of matter, called the earth, an incandescent chaos of heterogeneous substances when first launched from the confines of the sun, has cooled considerably since then; but its motion has never ceased, although its heat has changed into life. It still moves on, revolves, advancing and receding incessantly around the central and parental domicile from which it proceeded; and the moon, another handful of molten plastic matter, revolves around the earth, advances with the earth, revolving round the sun incessantly, uniformly, majestically. Hundreds of other handfuls of sun-matter, some larger and some smaller than the earth, revolve with the same regularity and continuousness around one another, and all of them around the sun. The motions and weights of all the components of this system are antagonistically and harmoniously equally balanced; they all perform work for some special purpose, known alone to the great omniscient Spirit of the universe; and all this work tends to the central orb; and so wonderfully equilibrated is the concentration of all these weights, forces, and vitalities, that, were one component annihilated, the functions of all the rest would be changed. How the vista of realities expands by the contemplation of the world's machinery! and still more so when, by study, we learn, that this system of ours, denominated the solar system, and which by simple contemplation has excited the highest degree of wonder and admiration, is but one solitary system out of myriads of similar systems, playing in space, caracoling and waltzing to rhythmical melodies, to time and measure, to us, by reason of their infinite distance, like so many particles of dust in a sunbeam, or so many midges gyrating in transcendental curves under a sycamore. Our brightest and most intelligent astronomers, such as Herschel, Mädler, Struve, Luhndal, and others, have reduced to calculations, or deduced from calculations, that the systemic motion in space, and hence systemic rotation is no myth; that all these myriads of systems, whose playgrounds extend individually over billions, yes, centillions of square miles, not only consist of their constituent bodies, which perform their daily and annual rotations around each other, but that they have functions to perform as systems; and we are led to the belief, from the statements of the preceding authorities, that systems revolve about systems *ad infinitum*. What a grand though inconceivable picture of the unity of action of the concentration of forces! There is a yearning in every breast, a hope, a belief that one day in the land of spirits we shall see the universe, and conceive its end and aim!

By contemplations of this nature the heavens become infinite in grandeur and design; whilst all of earth dwindles into a mere breath of air, into a film of gossamer; but in our littleness we may derive a grand lesson from the mechanism and motions of the heavenly bodies. Their incessant revolutions, in tact to celestial music, the consummation of all their individual efforts and motions for the effectuation of some grand design, teach us a grand lesson, and tell us to imitate their noble example, whenever we have a design of effecting anything great, scientific, or artistic.

Similar examples of the concentration of ways and means may be derived from things nearer home, from things in common life. Every organized society may be likened unto a wheel of a carriage, in which the spokes, radiating from the centre, constitute the members, whose actions are independent of each other, and who act apart from each other, each one diverging and expanding outwardly, prosecuting his own functions quietly and peaceably, and interfering less with one another the more they dilate in expansion; but they are all bound together by a common tie and tire, they all converge to a common centre, they all bring the results of their individual efforts to the *hub*, for the benefit of the common weal. But the lesson or simile does not end here; for, whilst the wheel is rotating, and the members of the organization are busily employed in their separate vocations, the *hub* is advancing through space. This tells us, and the same tale is told us by the progressive motion of the solar system at the rate of 422,000 miles every day, that organizations must not be stationary; they must advance, progress, add daily mites of knowledge to the stores already acquired; they must never stop, but onward, forward, slowly, steadily, continuously, nearer and nearer to perfection, which may be ever seen in the distance to lure them on, but, like the tangency of the asymptate to the hyperbolic curve, can never be attained.

I take my cue from the glorious machinery of the heavens, and the no less pertinency of the wheel of the wheelbarrow to spin the warp and woof of my lecture, and to prepare a textile fabric suitable for the present occasion.

Thirty years ago the processes of Daguerre and of Talbot were published to the world; these processes laid the foundation of that science and art which call us together today. There is no science more profound than that of sun-drawing; there is no art more enchanting and gratifying than that of photography.

Thirty years ago, profiles or silhouettes were taken by means of what is called a pentagraph, which, in its simplest form, consists of a long pole or rod moving on a universal joint, which allowed the pole to be rotated vertically, horizontally, in fact through all the angles comprehended between these two planes. On the longer end of the rod a strong steel darning-needle was fixed; into the shorter a black lead-pencil was inserted. The card-board to receive the picture, was attached to a flat piece of wood suspended on hinges from above, and resting by gravity against the point of the pencil as it moved or rotated, whilst the steel needle was carried by the operator around the contour of the sitter, beginning on the crown of the head, passing gently over and beneath the curls, along the forehead, over the ciliary ridge, in contact with the ridges and declivities of the nose, carefully over the lips and their cherry surfaces (this was the *pons asinorum*, over which, if the luckless operator once succeeded without interruption, he might regard himself an artist of the first water), finally along the chin and delicate neck, and over the panting chest to the waist. The swinging-board, that showed the outline so far traced, was here raised, whilst the needle was quickly returned to its original position on the crown of the head. Again, the draughting-board was allowed to fall on the point of the pencil, and the operator proceeded with the needle backwards over the homologue of the modern chignon, and along the neck and shoulders to the posterior part of the waist. Voila tout—that's all; excepting when the card-board was removed from the swinging back, the artist had to close the circuit by joining the back of the waist with the front, according to the rules of art, presenting a graceful curve like a fish-hook. This operation corresponded to posing and exposing in photography, and was wont to occupy about the same length of time, if the fair sitter, or the country lout, did not happen to burst out into an ungovernable laugh or titter when the needle crossed the lips. The next operation consisted in filling the whole surface, within the pencil-tracing, with a uniform body of Indian-ink; and when this was dry, the model had to sit before the artist, in due artistic style (for the artist never failed to assume all the supposed airs of genius), in order that he might sketch, upon the black figure, ears, eye-lashes, ringlets, ear-rings, lace, and drapery in their appropriate positions. These were then worked in with a darker ink rubbed up with gum-water, which heightened the contrast. Touches of gold, on the pendants from the ears, and on the breast-pins were extras, and demanded an extra price. This operation corresponded to development. To give greater dignity to the proceedings, the sitter was seldom allowed to inspect the work at this stage, but was requested to call the following day at a given hour, stating that the silhouette had to undergo retouching by a certain Monsieur, that is, a French artist in the employ of the establishment, who was so overpowed with work, that he never left his private room. The following day the sitter received the likeness, and, in general was enchanted with it. People were not so fastidious then as now. Such was the mode of taking pictures for the people, previous to the year 1839. Silhouettes were also cut out of black paper with a pair of scissors; these were quickly made, but were inferior to those made with the pentograph, and consequently they seldom fetched so high a price. Many examples of the delectable silhouettes are still in existence. I found one the other day that had been cut out in the tunnel under the Thames; it is truly a curiosity, and, as curiosities, I would suggest that a number of such profiles be collected and exhibited at our next meeting, side by side with specimens of modern photography. Comparisons of what we were, with what we are, present useful instruction. Limiting our considerations to photography alone, we may, with legitimate authority assert, that in no epoch in the world's history, of equal duration, has the advance of any art and science, from embryo to maturity or apparent perfection, been so marked as the art and science of photography. Beginning with the Daguerreotype, the Talbotype, and the Niepceotype, which sprang up like three mushrooms, side by side, as types of future expansion, let us examine them in their infancy and not in their manhood.

The Daguerreotype, in its origin, was but the ghost of a picture, abundance of spirit in it, but no body; it required much coaxing to be seen at all, and the more brilliant the light that illumined the picture, the less visible the latter became to the vision; like the metallic covering of a cupola suffused with sunlight, it was all glitter. In a few years the Daguerreotype became a perfect sun-picture, but it still retained the one great disadvantage of glitter and effulgency, unless viewed at just one particular angle. Although the Daguerreotype is pre-eminently the most accurately and most sharply defined of any picture, its qualities are too shining for our mental vision, and, on this account, it has properly been laid aside.

The Talbotype has gone through a regular and progressive improvement. We view it at first as a picture that could not bear the light of day; it became darkened by sunlight. The first step to improvement, was the discovery of the fixing solution. At this date we behold the picture of lace, white on a black ground, as also those of engravings, white on a black ground. These were our first negatives. They were made transparent with a solution of wax and other ingredients; they were excellent in their day. But the Talbotype, that is, our modern print on paper, received its master-touch, when glass, coated with albumen, gelatine, or collodion, became the negative; but the silver negative or positive, whether on glass, paper, gelatine, albumen, collodion, wood, ivory, etc., is still only another form of Talbotype. Look then, at our silver prints and negatives now, and tell us whether they can be made more perfect. That seems almost impossible. The negative and the print seem practically indestructible and unchangeable, if prepared properly, according to our present knowledge and experience.

The Niepceotype is really the type of the carbon and asphalt process. It has progressed slowly, but ultimately to a degree of perfection quite unexpected, and to the utmost of our desires. The present carbon print is unexceptionable; the process of preparing it may be simplified, but the print itself can scarcely be improved beyond the degree of excellence attained by Swan's or Blair's processes.

Then look at the photo-lithographic, the photo-zincographic, Woodbury's and Swan's photo-relief printing, and the various enamel processes that have arisen out of the Niepceotpye, so to say; and after this look, have we not reason to be proud of our exalted status in photography?

And what reason can be assigned for this rapid progress? Several circumstances have conduced to it. In the first place, by the generosity and liberality of the French government, the process of the daguerreotype was made public property, so that all men of genius, of education, and of art were at once at liberty to learn this charming art and improve it by their practice. Improvements came rushing in from all quarters, such as quick-stuffs or more rapid sensitizers; for the daguerreotype was at the beginning a very slow operation, requiring an exposure of many minutes, during which the model's head was fixed in a sort of vice; but the results were too enchanting to be abandoned, and in consequence of these, the knowledge of chemists and opticians was called in requisition; both classes rushed enthusiastically into the phalanx of operators and lent their aid, the former in the explanation of suitable and better chemicals, the latter in the production of more accurate and more rapidly-working lenses. To both parties photography is much indebted.

Herschel discovered the solvent properties of the alkaline hyposulphites on the chloride, iodide, and bromide of silver, and up rose immediately the Talbotype. The cyanides and hyposulphites were known only to the analytical chemist before photography needed them; they are now as common in the drug-store as salt in Syracuse. New metals have been utilized in photography, such as lithium, cadmium; and because they were found valuable aids in our art, all sources have been explored in order to obtain them, and in this search new sources of iodine, bromine, etc., have been discovered. Thus, whilst chemistry has been lending her assistance to photography, photography has reacted upon her benefactor, and aided in chemical development. There are but few chemists at the present day who are not able to take a sun-picture, and I hope the time will soon arrive when every photographer will be able to understand the chemical reason of every photographic reaction.

The achromatic combination devised by Dolland and manufactured by Ross and Chevallier, was a vast step in its time, both in microscopy and astronomy, as also an aid in naval and military tactics; this and the common and single objective were used by the first daguerreotypists and photographers, but they were found much too slow in portraiture, and besides this they had, more or less in general, two foci, a chemical and a visual focus, and objects were distorted by reason of the non-correction of the spherical aberration, especially, of course, in the single lens. If the Dolland lens had received no change or improvement, photography would have been limited to the field. But necessity educates artists and artisans; physico-mathematicians, or, perhaps better, mathematico-opticians reconnoitred the ground, investigated the existing interruption to further advances, found remedies and calculated formulæ. It is to Petzval we owe the first thanks for projecting a lens for taking portraits—he was the genius, and Voigtlander the workman; the former devised and drew the plan, the latter executed the workmanship. They both were indispensable; but the architect stands on higher ground than his masons and carpenters. Petzval and Voigtlander stand in the same condition with each other, in reference to the portrait combination, as Dr. Black and Watt in reference to the steam engine, or as Professors Henry and Morse to the telegraph. Geniuses devise, men of discipline carry out. The Dolland lens and the Petzval lens have both been considerably improved for taking respectively landscapes and portraits; the former in the first place by Petzval in the orthoscopic lens, afterwards by Schnitzer and Harrison, who gave us the ingenious, symmetrical Globe lens; these were great improvements on the old opera-glass combination; the next improvements, and the last ones up to the present moment, are those of another genius and patient investigator, Dallmeyer. Dallmeyer, too, has put a master's touch on the Petzval lens and changed its nature. From this great optician we derive the triplet, the wide angle, and the rectilinear lenses for landscapes, and the diffusion lenses for portraiture, all of which are impressed with originality and are unsurpassed. In addition to these, may be mentioned as original and valuable combinations, those of Steinheil, Zentmayer, and Busch. To these men and to those who execute the imitations of their masters, we owe, in a great measure, the rapid progress which photography has made; and to none more so than our own indigenous opticians, who are determined not to lag behind those of any other country in professional skill. There is no doubt that the best lens will, *cœteris paribus*, make the best work; and if that lens can be had only abroad, we must go to the expense and get that lens, let it cost what it will. But if on a careful and scrutinizing examination we find that our home manufactures are in every respect just as efficient as the foreign productions, it is our duty as Americans to patronize our brothers, although the work may cost as much; but much more must this patronage be kept at home if the price is only one-half for equivalent lenses.

The new optical house of Blunt & Co. tell us they are determined to supply lenses on these conditions, namely, lenses equal to the best English at half the price. I have examined their work, and regard the determination justified. Schnitzer, Usener, Boyle, Zentmayer, and Roettger cannot be beaten as practical opticians abroad.

And here we must not forget the part which the public themselves, however unconsciously, have taken in raising the sickly infant of photography to its present gigantic stature. Photography is, like food and raiment, a necessity; and necessity educates tailors and bread bakers in all climes. There is no hovel so mean as not to be decorated with a card-picture or a tintype; there is no lover so demoralized that does not wear his lady-love's picture as a talismanic gem, next to his heart. The public have already done much in making the photographic art a healthy institution; but they can now exert a much more extended influence over photographers themselves by demanding more art in the card or cabinet picture, and more style in composition; they can, if they choose to do so, make artists of photographers. Of course it is to be expected that photographers will lend a helping hand in the elevation of their art and eschew whatever is low and non-artistic.

Finally the journals have had their share in contributing to the rapid development of the art of photography. For it is the aim and interest of the editors of such publications to make them useful and attractive; and thus all the knowledge that could be obtained from practical operators and intelligent amateurs, has been freely and liberally recorded. It is impossible to estimate the amount of instruction that has thus been given gratuitously, we may say, instruction drawn from different quarters of the globe, for instance, from Great Britain, France, Germany, Holland, Italy, and the United States. But the element which has been more conducive than any other to the cultivation and spread of the art and science of photography is one that is only just beginning to be understood in this country, but which has flourished for several years in Great Britain to perfection; I mean the organization and activity of photographic conventions. These conventions are patronized by the highest personages in the realm, the Queen, the princes, archbishops, dukes, the clergy, as well as the most distinguished literary and scientific characters. It is quite refreshing to see so much democracy in the midst of so much aristocracy. It is by these meetings and conventions that the doings, thoughts, theories, processes, and speculations of men, living far remote from each other, are brought to the mill to be winnowed, ground, and sifted, and afterwards distributed as proper food for digestion. It is in these societies that the ways and means of learning photography are concentrated; it is here that geniuses come in collision, and, like flints, strike fire by eliciting truth. The value of societies and conventions is well understood by the members of the medical profession, perhaps better than by any other class of men; they have their organized County societies, their State societies, and their National conventions. The benefit to each member, who regularly attends the meetings, is marked on his countenance; he walks, too, with a nobler gait; he speaks a better language, has a more extensive practice than his neighbor who has only learned a few receipts, but neither reads a medical journal nor meets his fellow-practitioners in conventions to exchange thoughts and experience. The transactions of these medical associations are full of sound learning; for all extraneous, heterogeneous, and flimsy aspirations are sifted out and left unpublished. Knowing practically the value, the pleasure and erudition to be derived from the associations alluded to, I am earnest in my recommendation of the institution, and continuance of similar conventions for the practitioners and amateurs of photography. A few city societies already exist, as for instance the photographic societies of New York, that of Philadelphia, of Boston, and of Chicago. These are the nuclei of future greatness.

The first great benefit arising to an individual who has been enrolled a member of a society for the improvement of practitioners and the dissemination of discoveries in any trade or profession, is the humanizing of self; all the paraphernalia of pride and of conceit are excluded from such meetings; and, if by chance they find entrance once, they become so unmercifully stripped off and torn to rags, that they can never again be worn. Each one invests himself with a garb of humility and presents himself as a plain, unsophisticated human being, eager to learn from others whom he regards as his equals. This I call the *humanizing of self*; it is the reduction of man to a scale of equality with other men.

The next great benefit to be derived from the periodical meeting in question is the acknowledgment of merit in others, and of their superiority in special departments. A spirit of pomp, of pride, and of conceit, nurtured at home and flattered by his own immediate dependent circle, will seldom allow such an acknowledgment to enter the breast, much less to nestle there and make a permanent dwelling of it. But at the county society, where it is childish to put on airs that would be ridiculed, it would be folly to expose yourself to any feelings of jealousy by rejecting merit. To be able to remove jealousies from your character is a great conquest; and this conquest is sure to be a consequence of your regular attendance at the gatherings of your respective clans. This conquest I regard as the *ennobling of self*.

The next important advantage arising from the organization of periodical conventions is a tangible one to the purse. You there derive instruction, become better informed in specialties and in generalities, take your lessons in processes from the masters themselves, see performed what others only read about; your taste becomes cultivated, your art more widely developed, and your practice more expansive. All this naturally reacts upon your financial condition, and, controlled by a generous and subdued mind, you become a man of importance and sterling worth.

The final advantage to be derived from these conventions is perhaps greater than all the rest; for it is the consummation of all of them, and reaches its acme in the public good. The knowledge imparted to the society is *public* property, and is scattered broadcast through all civilized countries through the instrumentality of the journals. A new process, laid before the Photographische Gesellschaft in Vienna, is published in the Correspondenz, copied into the Mittheilungen, the Photographisches Archiv, crosses the Channel, appears in translation in the Photographic News and the Journal of Photography, puts on a French garb in the Moniteur de la Photographie, and the Bulletin Belge, appears in Italian robes in the Camera Oscura, is read in the Navorscher in Holland, in pure Russian at St. Petersburg, and over the wide domains of the Russian Empire, rushes across the Atlantic, and is spicily done up in the *Philadelphia Photographer*, and distributed for perusal from New York to San Francisco, and from Montreal to Brownsville, is carried across the Pacific, and reappears in Anglo-Saxon robes in Melbourne, where it is distributed over the fifth subdivision of the globe, and is finally found in the East Indies amongst the amateurs of the British army. In six months after the presentation of a new process before the photographic societies of London, Philadelphia, Paris, Berlin, or Marseilles, the entire globe of the earth is acquainted with it; this process is public property; and each photographer or amateur, that reads his own language, learns to practise the process, and thereby to increase the weight of his purse or the size of his artistic collection.

All of you who to-day are present at this first National photographic convention, are imbued with two prominent, predominant ideas: namely, an idea, that by your presence here you may hear or see something that will conduce to your improvement in photographic art; or, secondly, an idea that the general skill and knowledge in sun-drawing throughout the entire dominions of our country may be increased, and the intellectual status of photographers elevated.

I am certain that many entertain feelings of a much nobler character than those of selfish aggrandizement; the vastness of the country, its herculean strides in civilization, its progress in literature and art, in fine, its equality, and, in many instances, its superiority in all the ways and means of life, must inspire the breasts of all of you to the laudable ambition of rendering our fatherland and adopted country the model of perfection in every branch of human knowledge.

We have only to make up our minds to this ennobling thought, and then the end can be accomplished. We can be great, if we will it, alike in the vast extent of our globe, in art, in science, in literature, in statesmanship, and in offensive or defensive war; and I am proud to think you will it. It becomes, therefore, our duty, as earnest votaries to our sphere in this division of labor, to inquire by what means the art of photography can be expanded for the benefit of individuals and of the public at large.

I will give you my views on this subject. There are three distinct divisions of the subject under discussion, namely, Preliminary Education, Periodical Art Conventions, and Art Journalism; for it is by the combination of these three branches that the end in view can be obtained.

PRELIMINARY EDUCATION.

It is quite as essential for photographers to receive a proper preliminary training as for doctors, lawyers, and parsons; for, although it may sometimes happen that some individuals can educate themselves, and shine in their respective arts and professions, without the advantage of a previous training, such instances are rare; whereas, the examples of distinction are always more numerous on the side of the corps of educated followers. A general education is requisite for every American; but the special branches for photographers are decidedly chemistry, natural philosophy, and drawing. Now I mean by chemistry not that silly system of studying the theory of chemistry by heart from a text-book, as practised in almost all our schools. This system cannot fail to produce a host of shallow pretenders, flimsy scholars, mere smatterers. Just as well might you teach a cobbler to mend shoes by instruction from books, as instruct students in chemistry by filling their noddles with chemical equivalents and symbolic notations. Nor do I entertain much greater respect for that style of chemical instruction which consists essentially of flashy experiments of noise, color, and comicalities. Chemistry is *work*, not thought and book learning. It teaches us how to manufacture all artificial compounds of matter; how to separate all natural and artificial compounds into their respective components, or to convert them into other compounds. Technically expressed, chemistry is the synthesis and analysis of matter. This science is of the utmost importance to a photographer, for it supplies him with a rational exposition of every step that he takes, and for every experiment that he may make. A knowledge of electricity, magnetism, galvanism, electro-magnetism, magneto-electricity, in fine, of every subdivision of electricity, as also of pneumatics, hydrostatics, and optics, is essentially necessary for a scientific photographer ; for these are, as it were, so many weapons of warfare in scientific discussion, or so many keys to the comprehension of nature's secrets. The rationale of the photographic impression is to be found and learned only by the aid of chemical and physical instruction. In like manner our young tyros, or candidates for distinction on the arena of the camera and the print, ought by all means to have a thorough course in drawing, shading, and coloring ; and here I must express my indignation against another silly system much practised in our boarding and large day-schools, which consists in teaching young ladies and gentlemen oil-painting, yea, painting art compositions before they have learned to sketch a straight line, much less a pump or a cow. A greater agglomeration of absurdities can seldom be met with than in the productions of these native geniuses of the pencil and the slab to be seen in almost every farm-house of our extended country. It is no rare thing to find, in these exquisite paintings, the sun rising from between two mountains, the one behind the other, as if he were a thing of the earth, a candle in front of a mole-hill. I have seen, too, water-wheels to a grist-mill depicted on a mountain, and the stream that was to turn the wheel a hundred yards beneath. Now, when I insist upon the fact that our young photographers shall learn to draw, I mean nothing of this sort. Let them keep their hands entirely away from the paint-pot, but rather let them begin and draw lines, straight and curvilinear, broken and contorted, for a month or two: then trace single and separate figures of varied forms in their due and natural proportions; next proceed to copy simple drawings of the works of true artists; afterwards walk into the fields, to the farm-yard, to the docks, amongst the shipping, to the battle-field, to the church, and to the theatre, and learn to copy objects themselves in their natural positions. When their apprenticeship is near its close, and their fingers are educated in all the technical formalities of reproducing nature with the pencil as she is, then is the time with humility to try a higher flight, and aim to sketch an original composition, and to trim it with a poet's fancy schooled in realities. This is a hard school to graduate in, but it is the only one of real value and of true merit,—the only one of which each step leads to a higher, until you mount the platform of completion. To daub in oil paints before learning to sketch, is equivalent to memorializing the Egyptians crossing the Red Sea by a few dashes of red for the waves, and a few botches of blue for the sky; it is beginning at the end and ending where you ought to begin.

It seems to me that a country like ours ought to institute a college for the special purpose of educating photographic artists both for the army, the navy, explorations and surveying, and for the profession. Such a school would be invaluable. If this were feasible, then to the studies already enumerated, others of a more extended character would have to be appended, such as a complete course in modern languages, of mathematics, mechanics, mineralogy, zoology, botany, physiology, and geology. Instruction at such a school or college is what I term the requisite preliminary education of an American photographer, if we intend to shine and surpass other countries in work and composition. But at present there is no such institution ; therefore, the next best is to study and practise the most important branches, namely, chemistry, physics, and drawing, with the respective masters, and not dabblers, in these departments.

The second condition conducing to superiority and excellence is the institution of Periodical Art Conventions. By this I mean that the photographers in each village ought to be brothers, ought to throw aside all jealousies, and meet at least once a month in a friendly manner to exchange thoughts and civilities, to discuss processes, to record their experience in posing, developing, in the manufacture of collodion, etc. It would pay well to rent a room for this special purpose, and to have a large table in the centre for the exhibition of native productions, and the photographic journals and literature. The next step to be taken in this line is to organize a regular quarterly county society of photography in the court-house of each county, or in some other appropriate public building. Here a higher degree of excellence alone would be current, and of course the advantages to be derived would be commensurate. As such a society would consist principally of strangers or photographers from neighboring cities, the stimulus to excel would not be that of man against man, but of town against town, and city against city. A most earnest competition would be the consequence, and excellence would be the result. At the county society, it would be well to organize a photographic exchange club of the rarest specimens in landscape and portraiture, both for sale and to increase your own private collections. It would become the special duty of the county society to discuss the validity of patents, the propriety of taking out patents for discoveries, the adulteration of photographic chemicals, the denunciation of all photographic humbugs, underbidders, and pretenders, and thus to form a mutual and strong barrier against cheating and unfairness of every description, and a uniform scale of compensation for all work done by its members. A combination of this description would, of necessity, have great power,—sufficient power to instruct, assist, and protect each other in every case of emergency. The county society, as a matter of course, would have and give access to a higher degree of photographic literature than the village organization in the form of a library for reference, containing, in the first place, all the works that have been published in this country, in Great Britain, in France, Germany, Belgium, Spain, Italy, Holland, Russia, Australia, and the East Indies, on each and every branch of photography; secondly, here should be found copies of the description of every article or process on photography that has been patented in this country, as well as the records of all the trials and suits in reference to photographic inventions whose patents have been infringed and contested. Such a library would be of great value to every practitioner whose name was enrolled on the list of county members. At each and every meeting at least three members, who had already distinguished themselves by their zeal and qualifications in special branches, ought to be appointed to read each an article on his favorite topic at the next succeeding meeting. Such a mode would encourage emulation, and materially stimulate the members to perfect the known processes or discover new ones.

Finally, the National Conventions, which may occur but once a year, must be much more comprehensive than the preceding, and must foster the principle of national competition with other countries. Foreign photographic establishments, both of prints, lenses, chemicals, etc., must be invited to send specimens of their finest workmanship, for exhibition and sale at these great national gatherings; the invitation is sure to be responded to, the moment it is known that there is honesty of principle in the promoters and supporters of the organization, and responsible men at the head of it. In this way the members of the National Conventions become, as it were, cosmopolitans, without the expense and trouble of travelling abroad. Our indigenous manufacturers and operators will find much to admire and imitate, and some things that can neither be imitated nor equalled in these grand exhibitions. But our knowledge will be increased at every successive meeting, our tastes improved, our views expanded, and our pride humbled. There is no sort of schooling equal to that gained by travelling abroad, for polishing and softening down the character, and for making man a bearable companion; he learns that there is religion in every form of worship presented to the deity, whether among the followers of Confucius, the Brahmins, the Mahometans, in the Greek, Roman, or Anglican creeds, in Methodism, Presbyterianism, and Unitarianism, even in all the *isms;* he will find redeeming qualities in the ethics of every country, something to be learned and admired in the politics and municipal organizations of all nations; in fine, he will discover, wherever he goes, beings his equals and superiors, and that, after all, he is nothing more than a man. Do you think the Chinese, the Japanese, and the Hindoos are barbarians? They think the same of you, and measure your ignorance by your physical strength; the greater the bully, the greater the barbarian. But, meet each other on common ground, bring together the masterpieces of your mechanics, your printing-presses and your looms, your works in bronze and in ivory, turned in the lathe or graved with the hand; you will part good friends and in mutual admiration. But, if you cannot travel to see the good things of every nation on their native soil, you must learn to admire the people, from the photographic specimens in architecture, agriculture, and civil engineering, which they send to our exhibitions. This is certainly a just criterion of their civilization, and simply fair.

The advantages to be derived from national conventions and national exhibitions of photographic skill are incalculably great; at least this is the idea which I wish to instil into you, and you will find by experience in the sequel that this will turn out to be the case. The duties imposed upon the members of the National Convention are of a much higher order than those in the subordinate stepping-stones, the village and the county societies. Here men of merit must be sought out to lecture at each meeting on subjects appertaining either to the art or the science of photography. Many of the branches of photography admit of improvement; the rationale of the print and the negative is still incomplete; much that is desirable remains as yet undiscovered; many errors have crept into our wouldbe scientific explanations of the phenomena of photography; and photographic chemistry is still imperfect. Here is a large field of investigation open for our members; let each one choose his own subject of search, and enter upon it with alacrity. To the one that "knocks it shall be opened, he that seeks shall find," and let him that finds bring his discovery to headquarters, where his merits will be rewarded, and the community at large benefited. You will understand by this that the labor of investigation, discovery, and invention must be divided up amongst the votaries to our art and science; that committees must be formed to ascertain that which is most necessary to be known, and to apportion to each his task.

There is in addition, however, another point to which I particularly wish to draw your attention as members of this Convention, and as such empowered to bring about the necessary remedy: this point is photographic prostitution and quackery. Quackery! Prostitution! Yes, there is quackery and prostitution in our midst; men that prostitute the art to gain their bread, that humiliate themselves in the vilest manner, that pander to the meanest of vices, that exhibit nature in nakedness, and her secret actions in broad daylight. Did we not read but a few weeks back of men of our craft in the city of New York, who swore solemnly that they took photographs of departed spirits by spiritualism, and not by the ordinary rules of photography? What is this but the most barefaced quackery? Have we not seen the most shameless and obscene photographs sold in our public streets? Were not the operators that made them, and the siren nymphs that sat as models, and the parties that sold and bought them, all equally prostitutes? This is all fact, and it is my duty to suggest, and your duty to draw up a code of ethics for all honest and regular practitioners in the guild of photography to teach them what they may and what they may not do without incurring the odious appellation of quacks and art-prostitutes.

ART JOURNALISM.

I need scarcely revert to the advantages to be derived from honest and well-conducted journals either in art or literature. In photography our journals have been almost the only sources from which information was to be obtained, the only vehicle of communicating new inventions and discoveries. But it is very necessary that such vehicles should be drawn by more than *one* horse; they ought to be at least a coach and four, and well supplied with relays; I mean by this, that an editor must be endowed with exalted aspirations and liberal views, incapable of yielding to bribes to propagate untruths; he must work for the public good and not for patentees and stockdealers; besides this, an editor must be educated up to the subject he discusses, and not a mere speculator in other men's wits, and capable only of writing puffs and sarcasms. The honesty of an editor must be commensurate with his power; for a large community model their judgments and opinions after his, and are easily beguiled into the wrong track by a powerful but unscrupulous adviser. Much evil may be propagated, much error introduced, and much wrong effected by a venal and corrupt leader of a journal; whilst on the other hand many crocodiles and other amphibia, that can live both on land and in water, many snakes in the grass, sneaking and cajoling with their wiles, many bloodsuckers and nine-eyed lampreys watching for witless victims, may all be crushed in the germ by an honest editor, who, like a follower of St. Patrick in the land of Erin, circumscribes their expansion, as the latter does by drawing a circle on the ground with his finger, around a toad, saying: "So far mayst thou go, but not farther."

A journal is an organ of instruction and information, a sort of reservoir with its innumerable service-pipes, supplying its readers continually with a palatable beverage; besides this, a journal is a medium of communication between master and students, but it is sometimes prostituted to the condition of a go-between, an organ of communication between the taker-in and the taken-in, between a flashy advertisement and duped credulity. Fortunately there is an unfailing criterion of designating the merits of a journal, or at least the real object of its issue; for if the ephemeral or periodical publication is sold for a price less than that which it costs for paper and printing, look out for a wolf in sheep's clothing; there's a screw loose somewhere. On the other hand, a journal of intrinsic worth, whose character is independent, its instruction sound, and its advice unbiassed by any thing but honesty and truth, can demand a respectable remuneration, and with such a character, can be the organ alike of dealers and consumers.

This is the termination of the category of the principal requisites for the improvement of the private condition of each photographer, and for the elevation of the art far above that of a mere trade or business; but all these requisites must be brought to bear in concentration upon the craft as a body; a system of harmony and unity must be effected, our energies and emulations excited to greater actions; encouragements offered for works of distinction; protection guaranteed for new discoveries; a leader must be elected as commander-in-chief, one who is already acquainted with warfare, concentration of battalions, and the accomplishment of victory; one who with telescopic foresight can figure out results beforehand with the utmost precision, who can bring together from the most distant regions and through unheard of circuitous paths the scattered fragments of his army, so as to fall upon the enemy like avalanches on all sides, at the same time, and on the same arena of action. His subordinate generals and captains must be imbued with the same spirit of activity and concentration, but especially with obedience to their ruler; and each private must work conscientiously, assiduously, and with like obedience to his superiors for the common cause. You understand me; it is expected of every operator, whatever his condition, however humble his sphere of action, to enrol himself in some village company, and there learn to distinguish himself as a private by brushing his own boots and burnishing his helm, by learning to march in step, to wheel, to halt, to present, to fire, in fine, to perform all the operations of the print and the negative in person. Let progress be his motto; excellence his name. Companies, when thoroughly drilled, and led by experienced captains, will be organized into regiments on the capacious exercise-grounds of counties; and thence the regiments will march to the capitals of States, to be organized into grand State divisions. Finally, either on the day of review or of battle, the State divisions will display their banners and arms as one united body under the commander-in-chief. What else but success must crown our efforts if we thus act in combination? What else but victory must be the result, if each and every man acts like the spoke of a wheel, and brings all his efforts to the *Hub*.

After Prof. Towler's lecture—which was many times loudly applauded—Marcy's Photo Projector and Proctor's Magnesium Apparatus were exhibited, and pictures made and shown. They were a source of great interest to all who saw them.

DR. BOYNTON'S LECTURE.

THURSDAY EVENING.

Dr. J. E. Boynton delivered an interesting and instructive lecture, on "Sunlight and Moonlight," on Thursday evening, to a delighted audience. He illustrated his lecture by diagrams on the screen, and exhibited some very beautiful pictures. His lecture was extempore, and phonographic notes were made of it. They have not yet reached Philadelphia, and it is hoped that they will be in time for the next issue of this journal.

THE LANTERN EXHIBITION.

The exhibition of glass transparencies in the stereopticon, by Mr. O. H. Willard, of Philadelphia, on Friday evening, was like the exhibition in the upper hall, a brilliant success, and made a triumphant close of the photo-festal week. The Hall was well filled, and the pictures shown were grand. Many of them were prepared expressly for the occasion, from negatives sent to Mr. Willard for the purpose.

One of the greatest features of the evening was a large series of winter and summer views of Niagara, from negatives by Mr. George Barker, Niagara Falls. They were extremely fine, and elicited considerable applause, as did also the White Mountain views of Kilburn Bros., Littleton, N. H. Transparencies were also shown from negatives by O. H. Willard, R. Newell, and F. Gutekunst, Philadelphia, J. H. Kent, Rochester, N. Y., J. W. Black and Thomas Gaffield, Boston, Mr. Bell, Washington, "The $50 prize picture," by T. R. Burnham, Boston, the group of the members of the National Photographic Association, taken the day before by Mr. Black, a series of foreign views, and others.

The exhibition occupied about one and a half hours, and was creditable to all concerned. Mr. Willard introduced several novel effects, such as a snow-storm, change of backgrounds to statuary while in the lantern, a walking spirit, an aquarium with living fish, &c., all of which were loudly applauded.

The pictures were explained, and their photographic excellencies pointed out by one of the members of the Association, and the interludes filled with sounds from the Steinway grand piano by Miss Whiting.

After the lantern exhibition was over, the audience were invited to visit the Exhibition of photographs free; to take a last look at the *First Annual Exhibition of the* National Photographic Association.

The members of the Association lingered about and clung to each other (until admonished to go by the lights becoming very dim), and were loth to leave. All thought the time too short, and all wished that it might be longer. Every member of the Association seemed delighted and overwhelmed, and all went home feeling glad they had come, and sorry that the whole craft could not be there to enjoy what they had enjoyed—to see what they had seen—to be profited by what had profited them so much.

All left with new hopes, new aspirations, renewed determinations to do better work, and with the opinion that the National Photographic Association was and would always be a grand success.

Edward L. Wilson,
Permanent Secretary.

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ECLIPSE PHOTOGRAPHY.

BY PROF. HENRY MORTON, PH.D.

In connection with the lively interest which the proposed photographic observation of the approaching eclipse must excite in the minds of all concerned in this important department of modern progress, I have thought that a brief account of some important points connected with the most successful results heretofore obtained, would be of value at this time, especially as they are not attainable by all, but, on the contrary, can be consulted by few in the original papers where they have been recorded.

There can be no question that the most successful pictures of a total eclipse, thus far produced, are those taken by Mr. Warren De la Rue in 1860. The reason of this, without doubt, was the unfavorable state of the weather during the last eclipse, by reason of which a very long exposure was demanded, with instruments fitted rather for quick work; while, moreover, the cutting off of actinic rays by clouds precluded all chance of getting *actinic and invisible* details, such as were obtained in 1860.

The instrument used by De la Rue was that known as the Kew Heliograph, which was arranged by him originally, and has been constantly used for taking pictures of the sun, showing sun-spots, etc, in which the chief difficulty is to make the exposure short enough. The object-glass had a clear aperture of 3.4 inches, and a focal length of 50 inches, giving an image of the sun .466 inches in diameter at its focus, but, before falling on the sensitive plate, the rays pass through an ordinary Huyghenian eye-piece, by which the image is enlarged about eight diameters, or to 3.8 inches. The objective was corrected so as to secure coincidence of the visual and actinic foci, but, this being disturbed by the eye-piece, the proper position of the plate was determined by repeated trials.

For ordinary sun-pictures, the aperture was reduced to 2 inches by a diaphragm, and the exposure made by a slide drawn across the tube, at about the focus of the objective, by a spring of India-rubber, and having in it a slit which was adjusted by a screw to an opening of from $\frac{1}{20}$ to $\frac{1}{40}$ of an inch.

With this instrument, and a full aperture, a very faint picture of the full moon was obtained in *three minutes.* From observation of one of the totality pictures, it appears that a similar impression of the solar prominences might be secured in one second, and that fifteen seconds would be an abundant exposure, even with the scattering (to 8 diameters or 64 times), effected by the eye-piece. The pictures actually made by De la Rue were exposed one minute each, but were so much too intense, that it was only possible to print from them in strong, direct sunlight. The second negative moved twice accidentally during its exposure, gave three distinct images of the most delicate details. In both pictures, several objects were shown, which were invisible to all observers, being, no doubt, strongly actinic, but masked by the brightness of the corona, which, though described by all as extremely brilliant, is but faintly shown on any of these pictures, and not at all on those taken at Aden last year.

The light of the prominences, in actinic force, would appear to be about 180 times as strong as that of the full moon, and about 900 times less powerful than that of the sun. With telescopes of good aperture, and without enlarging lenses, it seems that a moderately quick, instantaneous exposure would be required for the pictures (during totality), of the prominences, and an exposure of some seconds would be required for the corona.

In an appendix to his report, De la Rue recommends, that on the occasion of future eclipses, refractors of six-inch aperture, and ten feet focal length, should be used, mounted on equatorial stands with clock-work drivers. Each instrument to have a portable observatory with photographic appliances, including four plate-holders and five baths, with *fused* nitrate of silver, which gives a more sensitive surface than the crystallized salt. Four operators should accompany each telescope, two being expert photographers, and all well practised with the instrument in making lunar photographs.

In connection with this, it may be interesting to mention that the writer of this article has made arrangements, under the auspices of the government, and the directions of Mr. J. H. C. Coffin, of the Nautical Almanac office, to secure the equatorial of the Philadelphia High School and that of the Gettysburg University, both of six-inch aperture. These, it is proposed to erect in a temporary observatory, on a very convenient location in West Philadelphia, kindly put at the disposal of the observers, by Mr. John Sellers, where the necessary practice may be made, before starting for Burlington, Iowa, where the photographic party is to join Mr. Coffin and his corps of astronomical observers.

GOLD TONING BATH.

BY M. CAREY LEA.

A CORRESPONDENT of the *Photographisches Archiv*, over the signature of J. P. S., proposes to modify the gold-toning bath which I sent you some time since, by substituting benzoate of ammonia for benzoate of potash, remarking that it is simpler to prepare. The objection to using the ammonia salt is, that its degree of alkalinity is very apt to vary. The combinations of these organic acids with the volatile alkali, especially the acid salts with which we have to do here, are apt to gradually pass, by keeping, into uncertain mixtures of acid and neutral salt. It is possible that such a mixture may answer equally well, but there is an uncertainty about such combinations that is disagreeable. If the alkaline benzoates can be purchased, it is as easy to use benzoate of potash as benzoate of ammonia, and, if they have to be prepared by the photographer, the same remark holds good.

The formula, as given by the correspondent of the *Archiv*, is: 1 grain of chloride of gold to each 2 ounces of water, and 4 or 5 grains of benzoate of ammonia. He does not state whether he used the neutral or the acid benzoate. It is a characteristic of this bath to give beautiful, warm, purple-black tones, and J. P. S. confirms this result and remarks, that the bath is very constant in its working. It has most resemblance, in its general characteristics, to the acetate of soda bath. The prints which it yields rank as high for stability as any. As some of your readers may like to try the bath as originally directed, I will briefly repeat the directions:

Dissolve 40 grains of caustic potash in 2 ounces of water, and add as much benzoic acid as will dissolve; filter the liquid and preserve it for use. For 10 ounces of toning bath, take ½ an ounce of this solution and add to five grains chloride of gold.

STEPPING-STONES OVER ROUGH PLACES.

III.

(Continued.)

BY GEO. H. FENNEMORE.

COLLODION *versus* DEVELOPER.

THERE is nothing in the photographic dark-room that requires to be better understood, than the proper relation between the collodion and developer.

The propensity of many photographers to stick to one formula, for the production of the different compounds used in photography, cannot be sufficiently condemned. For instance, with some, collodion should contain 5 grains of iodide and 2 of bromide to the ounce of collodion, to produce the proper amount of sensitiveness and intensity. With others, 4½ to 2½, and so on. I do not pretend to deny, that the variation between the amount of iodide and bromide, will affect the result in a material degree, but I do maintain that the general excellence of the negative and the amount of intensity, will depend more upon the quality and quantity of the pyroxyline that is used in the production of collodion, some samples of cotton producing a weak and flat image, others again producing very strong contrasts.

The sensitiveness of the collodion, will also depend more on the pyroxyline, than by any slight variation in the quantity of iodides or bromides. A collodion producing a weak and soft image, is generally much more sensitive than one that gives considerable intensity. Consequently any *set* formula, will be found in general practice at least, to be very unreliable; this may be proved by taking a given quantity of bromo-iodized ether and alcohol, divide it into three equal parts, and to each part add a sample of cotton from three different makers. Coat a plate from each, and expose and develop under the same conditions, and you will find that not only the quality of the negative, but the intensity of the image, will vary materially, and in some cases there will be a great difference.

The question then is not so much whether so many grains of this salt or that will be the best formula for general work, but what proportion of iodide and bromide is necessary with the sample of pyroxyline we have, to produce the best results. With some samples of cotton, negatives can be produced with as much softness and detail, with half a grain of bromide to the ounce, as others with 2½ grains. It is therefore very important when making collodion with a fresh lot of pyroxyline, to make a few ounces first and try it, in order to determine the relative quantity of each, necessary to produce the best results. This being done, we must depend upon the developer to give us the right balancing between intensity and half tone, so necessary in all good negatives.

How then is this to be done? Certainly not by having a 15, 30, or 60 grain iron solution as a regular developer, for a good photographer will have no regular developer. He may have a general one, which he strengthens or modifies, in order to produce the result he desires, but an arbitrary formula for either collodion or developer if adhered to, will only lead to vexation and disappointment in many cases, where it might easily have been avoided. And this can be done where the nature of development is properly understood. If a negative is properly exposed, with a collodion giving moderate intensity, a developer ranging from 20 to 30 grains to the ounce, will be found amply sufficient. If, on the contrary, the negatives are weak and flat, one-half the above strength will be sufficient. But should it be intense, double the above strength may be used with advantage.

As I said above, a collodion that gives a weak image with plenty of detail, is generally very sensitive, and will bear a very weak developer, which deposits silver slowly, the parts therefore most impressed by light, receive the largest share of the deposited silver, particularly if the plate is kept in a rocking motion during development, and the more silver deposited upon the opaque parts of the negative, the more intense it becomes. A weak developer, therefore, tends to give intensity, and should be used with a collodion, giving weak negatives.

A collodion giving strong contrasts should have a strong developer, for the opposite reason, that the action is much more quick, and tends to a more even deposit all over the negative, thereby preventing an undue aggregation of the particles of silver upon the parts of the negative most acted upon by light. In cases of extreme intensity, it may be still farther modified by a copious flow of the developer, and allowing part of it to run off, carrying with it a good portion of the free nitrate of silver.

This system of working does not entail as much trouble, as it would appear upon paper, for all that is necessary is to have two bottles of developer, one containing 15 grains of iron to each ounce of solution, the other containing 60 grains to the ounce. These, by judiciously mixing a portion of each together, will make a developer of any strength you require, and by so doing, you may get almost any character of negative you may desire. The whole matter then may be summed up in a few words.

First, make a collodion that will give you the most sensitive, at the same time not too intense a negative film. Then regulate the intensity by a judicious use of the developer, and you will find it much more pleasant and profitable, than sticking to any *one* formula, for either collodion or developer.

(To be continued.)

COLLODION VARNISH FOR PRINTS.

IODIZED COLLODION. OBSERVATION ABOUT PRINTING.

BY PROF. JOHN TOWLER, M.D.

A VERY effective and agreeable polish on glass is communicated to card or cabinet prints, etc., simply by coating them with a glutinous plain collodion. This polish is not so flagrant on the one hand as the so-called enamel surface, nor so dead as an ordinary albumen print that has undergone all the operations up to the mounting. I think I am justified in recommending the operation. Prepare the collodion as follows:

PLAIN COLLODION.

Alcohol, ...	3 ounces.
Ether, ...	4 "
Pyroxyline, . . .	42 grains.

Dissolve and filter in the usual manner.

The prints are first cut out to the proper size and floated on the reverse side upon clean water until they lie perfectly flat; then take one print at a time and place it on a piece of glass of the same size as itself, moist side downwards; it easily adheres to the glass. Let the excess of water drain off and remove all moisture from the picture surface; now coat it with the collodion and let it drain in the usual way, then dry it before the fire or in any manner which is most convenient. The operation is quick; and, it seems to me, the gloss is just about right.

FORMULA FOR IODIZED COLLODION.

Now that the odious bromide patent no longer exists (thanks to the arduous labors of our Editor), but few photographers will think of using the following formula for a collodion that contains no bromide; but I can assure them confidently and in good faith, that the negatives obtained with this collodion will vie honorably with the best bromo-iodized collodion. But little, and indeed frequently, no intensification is required. For room-work this collodion is all that can be desired. It keeps well, and when newly made is of a bright straw-color.

Alcohol, ...	5 ounces
Ether, ...	5 "
Iodide of Ammonium, .	40 grains.
Iodide of Cadmium, .	20 "
Iodide of Potassium, .	20 "
Pyroxyline, . . .	60 "

Dissolve and set aside in a stock-bottle, when wanted pour off and filter, if necessary, the requisite quantity for present use. Add to each ounce of collodion six drops of carbolic acid, which decomposes the collodion slightly and changes the color to a reddish hue. As I said before, it will not be necessary to intensify much, if at all.

OBSERVATION ABOUT PRINTING.

During cold weather do not heat your sensitized pieces of papers just before you place them in their respective cold pressure frames, otherwise the paper will swell in contact with the cold plate, corrugate during the printing, and thus blur the picture.

In summer, on the contrary, warm the sensitized paper to the temperature of the negative; otherwise, when heated by the sun the paper will contract, and thus produce about the same result as before.

WRINKLES AND DODGES.

I HAVE noticed a cause of streaking on negatives, which I have never seen in print. The spring on the door of the plate-holder is so shaped, that the two ends which press on the back of the negative, rest *flat* on the plate, so as to arrest the solution as it flows downwards, causing a thin stratum of fluid, from the two ends of the spring to the bottom of the plate. The reflection of light from this unequal distribution of the fluid causes the streaks. Remedy: Bend the spring in such a curve that it will rest two *points* on the plate.

Charles Woodward, M.D.

For a cork for collodion vial, I whittle a pine stick into a shape like the handle of a plate vise, a hole in the centre; then take a cork a little smaller than will fit the vial, and make a hole through it, and insert the pin of the pine piece (I cement the cork on with shellac); next take a piece of bladder (like that usually tied over acetic acid corks), and soak it in water until it is soft, then stretch it over the bottom of the cork and fasten it by tying a string around it where the groove is in the pine piece. This makes a convenient cork to catch in the little finger when using, is perfectly air-tight, and no little pieces of cork break off and fall into your collodion.

A. E. Turnbull.

One more item to think over. Travelling around the country here and there, we have been astonished at the few specimens displayed by the majority of photographers in their rooms. Do you not know that this shows a great lack of business tact? There is as much scope for the qualifications of a *salesman* in photography as in anything else, and one great way to sell your goods is to show them. When in the business ourselves, many persons came for pictures, not knowing what they wanted. Having a variety of specimens of all sizes on the walls, it was our plan to show the largest and best first, often selling a high-priced picture where, perhaps, a smaller one would have been selected. Another advantage of specimens is, they save you a great deal of talking, and, when you are hurried, that is an item. Decorate your walls with your best work, and a variety of it, and be assured, it will pay. "Hang your banners on the outer walls." Be enterprising and try it.—Ed.

No doubt all who have attempted negative making by a side-light only, are aware how difficult it is to light the subject properly, or without great contrast of light and shade. One side of the face is apt to be quite light, while the other is in deep shade. A white reflecting screen alone on the shade side, helps the matter only a trifle.

The other day I was called upon to make a negative of a corpse. The day happened to be a bright one, and I overcame the above-mentioned difficulty in the following manner: I selected a room where the sunlight could be admitted, and placed the subject near a window, and a white reflecting screen on the shade side of the face. As usual, the reflection from the screen was insufficient to equalize the light upon the subject, so I caused a pretty strong light to be thrown against the screen with a mirror, which caused an equal play of light upon the face, and an excellent negative was obtained without flatness. By varying the strength of the reflection from the mirror, the color of the screen and the distance of the screen from the subject, the above-named difficulty can be greatly lessened when sunlight can be had. J. M. Houghton.

PRACTICAL NOTES ON PHOTOGRAPHIC SUBJECTS.

BY G. WHARTON SIMPSON, M.A.

A Singular Cause of Spots in Prints.—A friend of mine, a professional portraitist, recently hunted down a very singular cause of spots in albumenized prints, which had perplexed him for many months past. The spots in question were minute, numerous, and yellow in color, with a dark centre. The most obvious cause for the spots appeared to be imperfect fixation. To me, when he asked my advice on the subject, it seemed certain that imperfect fixation was the immediate cause, and that this imperfect fixation was due to the formation of minute bubbles on the surface of the print when it was immersed in the hypo fixing bath. Attention to this and all other ordinary causes of spots, did not, however, serve to get rid of the evil. Sample after sample of paper, sample after sample of silver, gold, and hypo was tried in succession, but without any mitigation of the trouble, and, as a large portion of the work done consisted of card vignettes, the spots were as obtrusively apparent as they were disastrous. The printer was a careful and trustworthy man, but all his care failed to discover either the cause or a means of avoiding the spots. At length the cause was discovered in a very unexpected quarter. The principal of the establishment went into the printing-room one morning early to see if the spots were as plentiful and troublesome as ever. He noticed that many of the prints had floated to the surface of the water in the large washing-trough, the surface water being covered with a dusty deposit. On examining carefully, he found that, wherever this dust rested on a print, a spot was found under each particle, and, on further examination, he found that this dust partook of the nature of very fine ashes. Gradually he traced the whole facts. A stove, in which coke, as fuel, was burnt, was used to warm the room, and the coke burnt had contained a large proportion of sulphur, the especial visitation of the spots being coincident with the purchase of a new stock of coke, which turned out to be of inferior quality. With the disuse of the fire, the spots at once disappeared, and have not been seen since.

An Unusual Form of Studio.—Mr. Rejlander, one of your most skilful and artistic professional photographers, has recently had a new studio built in Victoria Street, Westminster, the centre of a very fashionable district. It is not on that account, however, that I refer to the matter, but because the studio is of somewhat unusual and daring construction, and its lighting facilities, although varied, are not based upon any of the orthodox plans. It is not, in sense, a glass-house, but rather resembles a handsome sitting-room, with a few magnificent windows, which can be used separately or in conjunction with each other, for lighting the sitter.

The length is about 40 feet, and its width about 18 feet. This length, which will afford great facilities for the management of groups, and some other effects, would be manifestly inconvenient for use on ordinary occasions, and will, therefore, be subdivided for general use. About 12 or 14 feet at the south end, facing Victoria Street, is separated by red cloth curtains, making an apartment to be appropriated to Mr. Rejlander's own use for painting, etc., the remainder being devoted to the purposes of the photographic studio, or, to speak more correctly, studios, for this portion will practically form two studios.

At the north end of the room is a window formed of one single plate of glass, about 9 feet by 7 feet. This is arranged so that it descends into a groove out of sight, giving an open space to the northern sky of about 9 by 7 feet. It will be seen in a moment, that with a window like this, used as a side light, here is one magnificent source of lighting for portraits. When the window is opened, there is a flat of about ten or twelve feet outside, accessible for addition to the length of the studio, and, with the sitter placed in suitable relation to this window, the camera can be placed in many varied positions in relation to him, securing good effects of lighting in each, some admirable open-air effects being possible, great rapidity of action being, of course, secured.

On the west side of the room are two windows, each about 7 or 8 feet by 6 feet, each of a singe plate of glass. In the roof is a skylight of about 12 or 15 feet by 9 feet, a portion of which is covered with obscured glass, admitting a large flood of top light. These varied sources of light, each admitting of being used alone effectively, or in conjunction with the others, afford a very complete system of lighting, giving unusual facility for variety of effect.

It will be readily seen, that without great skill in management, such peculiar and extensive facilities for unusual effects in lighting, might become very embarrassing; and, whilst I cannot recommend such a system of studio for adoption in ordinary portraiture, this description may be suggestive, especially when I add that I have already seen some very fine and rapid effects produced by Mr. Rejlander in this studio.

Photographing on Canvas.—The desirability of producing a photograph direct on canvas, on all occasions where it is designed as a basis for the work of the oil painter, has led to many experiments in this direction, and there are not wanting many methods producing very excellent results; but in most of these so many practical difficulties occur, that a more simple and certain method is often desired by most who have worked in this direction. Some details of a method, by a skilful, practical man, Mr. Peter Lothian, of Edinburgh, may interest some of your readers. He says:

"The oily surface which painters' canvas presents, is the first difficulty which must be got rid of, and it is effected in this way: Get your canvas ready, lay it flat on a board, sponge it over with spirits of wine, or carbonate of soda, or any other alkali, till the surface is free from all greasiness. Be careful not to rub the surface too much. Then wash clean with water. Make the canvas into a sort of dish by bending up the edges. Pour over the surface a solution of citric acid dissolved in spirits of wine; drip it well; when nearly dry, pour a solution of spirits of wine and chloride of calcium over the canvas for about five minutes, pour off, and allow the canvas to dry; when dry, float a solution of nitrate of silver, of the ordinary printing strength, for four or five minutes. I have printed canvas prints when the silver was only 40 grains, and found very little difference in the prints. Print in the usual way (do not print very deep), then fix with hyposulphite of soda; I have found that old or weak soda answers best. Toning with gold is quite unnecessary.

"The following may be taken as good workable formulæ for this process:

1. (*a*)—*Solution for Washing Canvas*

Methylated Spirits and Water, equal quantities.

Or—

(*b*)

Carbonate of Soda or other alkali, quantity sufficient in water.

2. *Solution for Coating Canvas before Salting it.*

Methylated Spirits, . .	1 ounce.
Citric Acid, . . .	20 grains.

3. *Salting Solution.*

Chloride of Calcium, . .	10 grains.
Spirits of Wine, . .	1 ounce.
Water, ...	1 "
Gelatine, . . .	2 to 4 grains.

4. *Silver Bath.*

50 grains to 1 ounce water.

"Considerable latitude is allowable with these quantities.

"Another way by which many modifications of color can be got, is to prepare the canvas surface as above. When washed and dried, the surface is to be chlorided by the application of a solution of the salt chosen, keeping the equivalent of chloride equal to about 5 grains of chloride of sodium to 1 ounce of water and spirits of wine in equal quantities; add to this from 1 to 2 grains of either gelatine, starch, albumen, or similar organic substance, and add about 10 grains citric acid; float this on the surface as directed, then, when dry, apply the nitrate of silver, and print. The printing is much more rapid than ordinary paper printing, equal, I should think, to about one-third of the time only being needed for the canvas, than for an ordinary quick-printing paper. I prefer, where possible, to use a large printing-frame, to insure perfect contact with the negative and canvas surfaces, otherwise, the usual want of sharpness and decision will be visible. This method of printing is applicable to direct as well as enlarged negatives, and the prints before you this evening include several of both kinds.

"Much washing is not required, as the hypo does not penetrate into the impervious surface of the paint; indeed, in this respect, it is much like printing a transparent positive on glass."

Sarony's Photo Crayons.—I presume that by this time the simple and effective style of portrait, which Mr. Sarony has introduced here as the photo-crayon, has become popular amongst American portraitists. In this country it has been generally admired, and, as it offers a prospect to the portraitist of large profits from the negatives at present remaining idle, photographers have good reason for welcoming the new method. In Paris, where Mr. Sarony recently introduced the style, one dealer alone, at once gave him an order for four thousand of the vignetted designs, which serve as the backing for the portraits.

I have recently been giving some time and attention, to experiment in producing the transparencies for these portraits. I find that, although the exposure is much longer where pyrogallic acid development is used, yet the quality and tone of the image are much better. In some cases, with proper exposure, a fine colored image can be obtained without any toning whatever. A good developer for the purpose, for summer use, is as follows:

Pyrogallic Acid, . .	1 grain.
Citric Acid, . . .	1 "
Acetic Acid, . . .	15 minims.
Water, ...	1 ounce.

One advantage of this solution is, that its operation is slow and under control, and it is not difficult to form an opinion of the exact finished result from the appearance of the image whilst developing. If, after fixing with strong hypo, and washing very thoroughly, the color of the picture is too gray, toning must be adopted. It is a good plan to wet a piece of smooth, white paper, and allow it to drop against the film; it is then quite easy to judge of the color and depth which the finished picture will possess.

I prefer gold toning to the method with mercury, followed by hypo or by ammonia. A strong solution of neutral chloride of gold, about one grain to an ounce of water, answers well. In using this, certain facts are to be remembered: If the gold solution contains any trace of free hydrochloric acid, it will tend to bleach the picture, and make it a little less vigorous than at first. Or, if the exposure has been long and the development very rapid, and the image is already a little feeble, gold toning will tend to make it more feeble still. If the plate has been developed slowly and a very vigorous image is obtained, the application of the gold solution will not reduce the vigor, but will rather add to its force. If, however, after toning, the image appear too vigorous, or it is found that any trace of deposit has been produced, in developing on the transparent parts constituting the lights of the picture, the application of strong hypo solution, after the gold toning, will at once remove all such deposit, and considerably reduce excess of vigor or density in the transparency. This will be easily understood: the action of the chloride of gold is, besides depositing gold, to change any foggy deposit of silver, and, a portion of the image generally, into a chloride, which is dissolved by the hypo and removed. Gold toning gives these transparencies a rich, warm, black color, well suited for the crayon-like effect required in the finished picture.

"REMBRANDT EFFECTS."

In the last number of the *Philadelphia Photographer*, I read an article entitled "Rembrandt Effects," in which my name is mentioned. Allow me therefore a few remarks on the subject of the, so-called, "Rembrandt Effects." This style of picture was made by me over two years ago, of a number of persons, especially artists; as those of Messrs E. Leutze, Lambdin, Kauffmann, Oertel, etc., etc. The negatives as well as the gentlemen are still in existence, with the exception of the lamented Leutze. These pictures were called rather "Rembrandtish" (*not* "*Rembrandts*," and were never so baptized by me, I modestly called them "Shadow Effects"). The pictures I produced, although *called*—"very fine," "magnificent," "superb," etc., etc., were, according to my ideas, very poor. I knew full well that Rembrandt never took a black opaque canvas in order to show a few patches of white paint to greater advantage, nor was he ever known for vulgar contrasts, such as black and white. On the contrary, on his dark shadowy, but transparent background, the figures are beautifully relieved, and in the deepest parts of his drapery the detail is nicely suggested. Between his highest lights and strongest shadows, you will find every imaginable gradation of tint, the same as with other artists of his time, he, however, throwing in an extra high light, which his followers and pupils were unable to reach, his high lights telling out, because he was very spar-ing with them. Rembrandt's pictures are all half tone and shadows, deep shadows, but not blackness, as with my "photos." Some of my pictures, however, came out pretty well, rather odd in effect, if you will, but still pleasing, especially one of "*General Boum.*" (Mr. Beckers, of the Opera Bouffe.) Shadows, deep shadows must be photographed, and this I did not find difficult to do, by using reflectors and counter-reflectors, which I have lately constructed (and a full description of which I shall be most happy to forward you should you so appoint). But what I *did* find difficult to do, was to preserve the *drawing* and *proper shading* of the light parts, such for instance as the shirt front, sleeves, collar, etc., etc., on the *shadow side*. It requires the utmost care to prevent a bad "squint" in the sitter, and as the shirt collar will reflect better than a black velvet coat, and a glossy eye better than the rough skin, the operator will find it rather hard to please an artistic eye with his production. It will always be a difficult thing to produce this most charming, but also trying picture; that is, if you treat portraiture seriously as it should be treated. It is of course much harder to light a sitter in this manner, than in the ordinary way, and the technical part of the work requires also more care. The *background* must have a great deal of attention. For example: A gentleman with dark hair, and with dark draperies, should not be taken on a dark background of the same weight and color, as the deepest parts of the shadows; it should be *lighter*, to give relief to them. It will then be sufficiently dark to throw out the high lights on the face; Again: A lady with light hair, fair complexion and white draperies, should have a different background, since one is very apt to get too much strong and harsh contrasts where harmonious contrast is what is desired.

But I forget—I asked for your kind permission to make a "*few remarks*," and here I am in a fair way to fill your whole journal. In conclusion, then, I should like to correct a statement made by Mr. Baker about statuary taken from the dark side, relieved by a still darker background (black velvet). I saw similar effects in some daguerreotypes eighteen or twenty years ago, in Frankfort on the Maine, and the same effects about nine years ago in London. A "bust" is easily taken in this way, for its skin, hair, draperies etc., etc., so to speak, are *all* white or of a similar color, but not so with a human figure. The difficulties are many, and for this reason, Mr. Editor, I disappointed you in not sending the long-promised "Rembrandt Effects!" for your valuable journal.—The pictures, of which Mr. Hull was so kind as to mention in some late numbers of the "*Philadelphia Photographer*,"—I tried to better, but could not succeed in my old gallery. Inclosed you will please find some, taken under my new light, and I hope you will find them better than the last I sent you. I shall endeavor to perfect, or at least to make them acceptable to your readers and your journal, in which last, photographers should exhibit only their very best work.

I read and keep many of the European journals, and know that yours is the only one that takes the trouble to give a picture of the desirable size, for the instruction of its subscribers. The "*Philadelphia Photographer*" is known all over the photographic world as a *first-class* journal, and I will in accordance try to send you a *first-class* picture for it.

W. KURTZ.

NEW YORK.

DEVELOPMENT OF COLLODIO-BROMIDE PLATES.

BY M. CAREY LEA.

CARBONATE of ammonia has passed into very general use, as the alkali for developing collodio-bromide plates when the alkaline development is used. The only other alkaline substance now at all in favor, is dilute liquid ammonia. Both these substances are volatile, and, when a number of plates are developed at a sitting, the air becomes a good deal charged with the vapors.

Without regarding ammonia and its carbonate as being very unhealthy substances, I cannot think it very desirable to pass a considerable period of time exposed to their vapors. When ammoniacal fumes are dense, their action is decidedly noxious; they attack the blood through the respiratory organs, and produce a paralysis of the blood-corpuscles. Even in the more attenuated form, in which the vapors may surround us during development, they cannot be considered as otherwise than objectionable.

I hoped to find that *potash*, in the form of bicarbonate, might be made to take the place of ammonia, but was disappointed. I made the comparison very carefully. Two plates, identical in every respect, received an exactly equal exposure, the one following the other with the least practicable delay. Two developing baths were made of exactly equal strength, with the only difference that in the one the solution of ordinary sesquicarbonate of ammonia was replaced by an equal quantity of a solution of equal strength of bicarbonate of potash.

The difference in the result was extremely striking. By the time that the plate developed with ammonia was fully out and finished, that treated with bicarbonate of potash only faintly showed the sky line.

This treatment seemed also to have somewhat injured the plate. Although it was carefully washed off and then treated with the regular ammonia developer, the plate did not come out fully as well as the other, which had been begun as well as finished, with ammonia.

I, therefore, conclude that bicarbonate of potash is altogether inferior to sesquicarbonate of ammonia, as a developer for dry plates made with bromide of silver.

As it seems impossible to replace ammonia with an inodorous alkali, I can only suggest the necessity for good ventilation, whilst working in this way. It is one advantage in dry plate photography that the plates are generally densified at night, and that in pleasant weather the windows can be open to dissipate the ammonia fumes.

GERMAN CORRESPONDENCE.*

American Pictures—Adam Salomon's Style—Art and Business—Stripes on Plates—Curiosities—Albertypes—The American Exhibition—Inverted Negatives—Uniform System of Weights and Measures.

The American pictures which I received from you last month, continue to be a source of study and pleasure.

I referred in a former letter to the successful pictures of Mr. Notman, executed in Salomon's style. I have now before me some others, which deserve to be acknowledged.

These efforts are the more to be appreciated, as they indicate artistic understanding, for, in an artistic point, portrait photographers have still a great deal to learn. Salomon's style has many drawbacks for the practical photographer. The pictures require that the artist himself shall superintend the production of the pictures from A to Z. He has to arrange the sitter, take the picture, develop and intensify—he himself has to attend to the retouches and the printing.

You may give to an ordinary printer one of Adam Salomon's negatives, and he will produce a picture, but by no means one equal to Salomon's. This circumstance is of little account with Salomon himself, who, on an average, does not take over three pictures a day, and receives for each one, one hundred francs. If he would try to make thirty pictures a day, he would find it impossible to watch the printing process as closely as his style requires it. This is the point where business requirements and art are at variance, and the reason why everybody prefers a process which admits of easy and comfortable working, and the production of quantities.

In my correspondence of last year I contributed some articles on Landscape Photography, particularly in regard to the artistic stand-point. My friend, Remele, who read these, remarked to me: "My dear Doctor, all you have said and written is very beautiful and very true, but unpractical.

"You request that views which are not artistically beautiful, should rather not be taken. I went last summer to the Hartz Mountains and took about a hundred views. The ugliest of them all, without a doubt, was the hotel on the Brocken, and I only took it at the request of my publishers. And this ugly picture has had the largest sale, while other pictures, which I myself place the highest, and which have delighted the painter and artist, have found no sale at all. The public does not care a fig for artistic finish. It buys a picture as a remembrance of the place where a gay night was spent in a frolic, or some love adventure. The effect of a picture depends more on the remembrance connected with it, than on the artistic value.''

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* Received a few days too late for our last issue.

I could not help coinciding with his views, for the artistic taste of the public generally is still less cultivated than that of the photographers.

In the last session of the Photographic Society, Mr. Wilde called attention to a peculiar kind of stripes on negative plates, which make their appearance during development, and are in the direction of the immersion of the plates.

In the bath appears, after the preparation of a few plates, a settlement, particularly on the sides of the bath. By employing a fresh bath, and a cleansed bath-holder, the stripes would, for a time, disappear, but became apparent again with the precipitate in the bath-holder. On a closer examination, it was discovered that the dark stripes on the plates corresponded with the light stripe which was made by the glass dipper on the lower side of the bath-holder.

This coincidence is the more remarkable, as the collodion film is separated from the side of the bath by the thickness of the plate and the dipper. An explanation is difficult to give.

In this connection I have to mention a rather mysterious curiosity. I remarked to you before, that I covered some of my Aden negatives with a caoutchouc solution, before varnishing. In the course of time these negatives showed white spots, which disappeared on treating the negative with alcohol. Such a plate, after having been treated with alcohol and revarnished, was given to the printer.

Once the printer made on the sensitive paper, while it was lying already on the negative, a mark in lead-pencil, by writing on it the word "Morning." After several prints had been taken from it, the white spots reappeared. On a closer inspection, I found that they represented the word "Morning." They had their origin in the pressure of the pencil on the negative.

Otherwise it is very characteristic that all the negatives which I took in Aden (those also which were not covered with the caoutchouc solution), were all very easily injured; while, on the other hand, those taken in the desert were very durable. This difference can only be explained by the difference in humidity of the air at Aden and in the desert. At Aden the air is constantly so moist that the spongy collodion film hardly ever gets perfectly dry, and the varnish forms always a somewhat milky film. It is quite to the contrary in the desert, where the air is excessively dry.

Albert's process is still much talked about, and its merits often discussed. Lately I received from Albert, who has fortunately recovered from his illness, some samples, which, in beauty, exceed all his former efforts, and particularly in strength, sharpness, and whiteness, leave nothing to be desired.

After the publication of the patent, a good many persons have commenced experimenting with the new process. It is evident that the indications which are given in the patent are very faulty, and at times absolutely false, but the experiments which my friends have made, go to prove that the making of the plates is an easy matter, provided the exposure is determined by the photometer.

The printing, however, is very difficult, and this will be the stumbling-block for most photographers. It seems to me to be necessary to educate printers especially for this process. For the making of a dozen cards, the old silver process, or the carbon prints, will be continued, but for larger quantities the Albert process will prove very valuable.

Mr. Albert has promised me to send some specimens to the Boston Exhibition, and the Americans will have an opportunity to become acquainted with his work.

Berlin, also, I am glad to say, will be well represented in your Exhibition. I have done all I could to induce our photographers to participate, and you will receive the pictures of some of our best artists.

Portraits and stereos from Loescher & Petsch, cabinets and reproductions of oil paintings from Milster, carbon prints from

Grasshoff, and from Schauer large reproductions of oil paintings.

I regret that the time was so very short, or I could have increased the number of exhibitors.

When I reported to you some time ago about the Albert process, I mentioned the different ways of producing reversed negatives. Albert himself proposed the employment of glass prisms, but it is difficult to obtain perfect prisms, and Steinheil of Munich, the well-known inventor of the Aplanatic lens, recommends in place of the prism, a silvered mirror. It is not so very difficult to make these perfectly plane. The silvered side, and not the glass side, is used; and this is easily kept bright by means of a velvet brush.

These mirrors, to the size of six inches, have been made by Steinheil. They are not only much cheaper than prisms, but absorb, also, much less light.

An interesting request is at present before our Society. We are asked to lend our influence to bring about a uniform measure of cameras, copying frames, plates, etc., etc. And such an agreement would indeed be a great blessing. It is very troublesome at present to convert the different English measures to our own standard, and *vice versâ*.

Perhaps your National Photographic Association could do something to bring about so desirable a result, and take a step towards the general introduction of the metric measures and weights. Yours, very truly,

Dr. H. Vogel.

Berlin, April 28th, 1869.

OUR NEXT PRIZES.

Our readers will not forget our offer of three prizes. We know of several who are now trying for them. We have but little space to say anything about them now, except to refer to what we have already said, and to add that it may be optional with competitors, who receive the prizes, to have a *gold medal* or $25.

They will please let us know when the negatives and prints are sent. Follow the stipulations of the offer strictly.

OUR PICTURE.

Our pictures this month are the long-promised ones from Mr. George Washington Wilson, Aberdeen, Scotland. It would be gilding fine gold to speak in their praise, so eloquently do they speak for themselves.

Mr. Wilson is, undoubtedly, the prince of the landscape photographers of the world. Many try, and right they are, to imitate him. Their pictures are called sometimes "Wilsonian," but these are *Wilson's own.*

Our readers lately enjoyed an article on his manipulations by him, in a late number of our Journal. A second paper was expected from Mr. Wilson, with the pictures, but he was absent from home when they were sent, and the paper will doubtless be in time for our next.

Mr. Wilson's work is well known in this country, by his stereoscopic views. Dealers in them find *no views* to sell so well as his. More than one house we know of, imports his views in fifty-gross lots every few months. The principal dealers in them, are Charles Pollock, Boston; E. & H. T. Anthony & Co., New York, and Wilson, Hood & Co., Philadelphia. Landscape photographers should have series of them, and *study* them well. There is much to learn in them, much worthy of following.

They will help any one interested in outdoor work, to do better. Mr. Wilson is not a man who goes out early in the morning with twenty or sixty plates, working hard to secure a negative on each. *One good negative* is a greater prize to him, and actually worth more money to any one than twenty or fifty bad or indifferent ones. He spends his first day in any chosen locality, generally in finding out the best point for the camera, and the time when the light is best. The next day he takes advantage of his study, and what he gets is *good.*

We hope our readers will purchase his studies largely, and that the dealers in them will sell at reduced prices, to enable photographers to follow our advice.

Mr. Wilson has printed from several negatives we notice, and had printed on the mounts the name of the subjects. Parties desiring duplicates can therefore order by title. Mr. Wilson has desired us to say that his prints were made on the double albumenized paper of the Albion Albumenizing Company, 85 Maxwell Street, Glasgow, whose advertisement appears herein. He recommends it as a very superior article, and we think the prints justify such an assertion. The Company are desirous of obtaining agents in America.

It was no small undertaking for Mr. Wilson to print our large edition with his great rush of business, and we are greatly obliged to him, believing our readers will also prize such gems of our art.

Mr. Wilson has printed from ten different negatives, viz.:

Loch Tummel—The Queen's View; Loch Lomond, from near Geiss; Melrose Abbey, from the Southwest; Loch Katrine, the East End; Interior of the Ball-room, Balmoral; The Channel Fleet in Plymouth Sound; Interior of Roslin Chapel; Loch in Dorbh, Morayshire; Highland Cottage at Luss; Burns's Cottage, Ayre.

Thus, it will be seen, we have views of lake, sea, land, and interiors, all elegant and interesting, historically.

SALAD

For the Photographer.

In using glass-baths, accidents frequently occur from the dipper striking the bottom of the bath, or else the plate slipping off the dipper; in each case the fracture of the glass bath may take place. These are accidents that frequently render useless valuable baths, also a liability to the loss of silver. A very simple plan has preserved a glass-bath, subject to constant use, in excellent order for years. Cut a piece of pure rubber about the size of the bottom of the bath, about one-quarter of an inch thick, punch a number of small holes entirely through the rubber, and place in the bottom of the bath. The rubber will prevent all damage from jar, and the holes will be filled with sediment from the solution.

John C. Browne.

It has recently been decided in the courts both in France and Germany, that if a photographer goes out to make a view for a party, the negative is the property of the party for whom the view was made.

In England a lady's portrait was used as a witness in court against her husband, and the lady for him. The portrait was the best, for it won the case.

The Fable of the Crow and the Pitcher applied to Photography.—The fables of Æsop are probably as well known and oftener read than most books, and may be found upon the shelves of every well-regulated library. Many of them are doubtless familiar to your readers, but to save reference, the following is offered as a rough translation from a French copy. "A crow, very thirsty, espied a pitcher; he flew to it with joy, but found the water in it so low that with all his efforts he could not reach it. After various trials, the thought came to him that by filling the pitcher with stones, he could raise the water to the top. Acting upon this resolution, stone after stone was dropped into the pitcher, until the water reached to his lips. He drank and was satisfied."

Now for the practical illustration to photography. During a visit made by the writer to a very enthusiastic photographic friend, residing in a part of the country famed for its charming scenery, a condition of affairs arose, making the described fable applicable. After an early start on a bright April morning, the chosen locality was reached, the tent pitched, and all things arranged with the prospect of a successful day's photographing, when horrible to relate, either by accident or otherwise, the nitrate bath was found to be only half full of solution, which was an unfortunate discovery. Everything else was in perfect order, and the day faultless, but not a particle more of nitrate of silver could be obtained. What was to be done? give up the expedition, and return home to be laughed at by all the family? "No, never," my ingenious friend remarked. A council of war was held, and possibly after as long a deliberation as the famous crow had made, he exclaimed: "I have it;" and proceeded to drop (not a stone) but a clean glass plate into the bath. The principle was a success, and after four glasses had been dropped into it, the solution was raised to the proper height, room still remaining for the dipper and collodionized plate. The photographer was entirely satisfied, and has many nice negatives to show for his lucky thought. Your correspondent at once noted the novel application, thinking that some photographic crow might be enabled to derive some benefit from this suggestion, and give a large share of the credit to one of Æsop's fables, for a very easy solution of a serious photographic difficulty.

Do not in the future despise

A BLACK CROW.

SEVERAL styles of apparatus for working wet plates out of doors, without a tent, are described in our English contemporaries, but none so compact and good as Mr. Wright's, we think.

"NEVER DESPAIR.—Depend upon it, the world is not tired of photography. With the fostering care now bestowed on the art it must, it will, command a brilliant future."—W. T. BOVEY, in *British Journal.*

THE *British Journal* calls Obernetter's collodio-chloride paper "a photographic luxury." So it is, but alas! one *we* cannot enjoy, for it spoils before custom-house red tape will untie and let it "pass."

"THE artist who would not modify and lessen the faults of the process, but also the defects of the sitter, will soon find his atelier deserted. This question of retouching is so important that it has given rise to a new industry; and, if photography has annulled the employment of a few designers and portrait painters, it has given the means of life to a much larger number, who are employed in retouching negatives and positives."—M. DAVANNE.

PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

THE regular monthly meeting was held Wednesday June 2d, 1869, at 8, P.M., the Vice-President, Dr. Wilcocks, in the chair.

The minutes of last meeting were read, and, after amendment, were accepted.

Credit should have been given to Mr. Borda for the negatives from which the enlargements were made, exhibited at the last meeting, instead of to Mr. Moore, the enlarger.

In the absence of the chairman of the Committee on Prizes, Mr. Edward L. Wilson, Mr. F. T. Fassitt reported that they had procured the two medals ordered by the Society, which they exhibited.

The chairman then presented to Mr. John C. Browne, to whom was awarded the prize for the best view of Girard College, one of the medals bearing upon the obverse the arms of the Society, and, on the reverse, a suitable inscription. Mr. Fennemore, being absent at the meetings of the National Photographic Association, no presentation was made of the prize for portrait photography which was awarded to him.

Mr. C. W. Hull was duly elected a corresponding member.

Mr. Borda exhibited some enlargements by Mr. Albert Moore, from negatives taken by himself in Pike County, Pennsylvania. As specimens of solar work, they were admirable.

On motion of Mr. Corlies, it was resolved that the prizes, hereafter to be given by the Society for the best specimens of photography, be in the form of a certificate, to be signed by the officers thereof.

The Society then adjourned, to meet on the first Wednesday in October.

JNO. C. BROWNE,
Recording Secretary.

WEST VIRGINIA PHOTOGRAPHIC ASSOCIATION.

THE following is a condensed report of the proceedings of the West Virginia Photographic Association, held in Wheeling, Virginia (Wednesday), May 5th and 6th:

Responding to a call published by circular, and issued to the photographers of Eastern Ohio, Southwestern Pennsylvania, Northern Maryland, and West Virginia, a number of photographers from States, and parts thereof, assembled at Good Templars' Hall, Wheeling, Virginia, at 2 P.M.

The meeting was called to order by A. C Partridge, Esq., who stated the object of the Convention, and read the call for the same.

On motion of J. P. Shaffer, A. C. Partridge was elected Chairman, and B. E. Hawkins, Secretary, *pro tem.* (*the proceedings* being similar to other bodies of the same kind, it will not be necessary for them to be enumerated here).

"The Constitution of the National Photographic Association" was requested to be read, and, as far as applicable to our Association, was adopted as our Constitution and By-Laws.

The *Philadelphia Photographer* was unanimously chosen as "the organ of the Association."

The officers elected are as follows:

President.—A. C. Partridge, Wheeling, W. Va.

Vice-Presidents.—J. S. Young, Washington, Pa.; R. M. Cargo, Alleghany, Pa.; J. P. Shaffer, Morgantown, W. Va.; M. C. Cadwallader, Marietta, O.; G. B. McLaughlin, Cumberland, Md.

Treasurer.—J. Brown, Wheeling, Va.

Secretary.—B. E. Hawkins, Steubenville, Ohio.

The President was elected a delegate to the National Photographic Association, to meet in Boston, June 1st, 1869.

The Executive and Standing Committee consists of the President, Secretary, and H. Vance, Esq., of Barnesville, Ohio.

The Association requested that the Secretary furnish their organ, "The *Philadelphia Photographer*," with the condensed report of proceedings.

After the transaction of some minor business, a motion was made to adjourn, subject to the call of the Executive Committee, at a time and place designated by them.

The members present expressed themselves in the warmest terms with regard to the Association, and hoping we may have a more general response to the call for our next meeting. Photographers and members of other associations are cordially invited to be present at our next meeting. Due time and place will be made known through the *Philadelphia Photographer*.

On motion, adjourned.

B. E. Hawkins,
Corresponding Secretary.

Editor's Table.

Our current number is later than usual, on account of the delay of the phonographer we employed in Boston. His copy did not begin to arrive until the 30th June, two weeks later than he agreed. We shall take great and good care that our readers are not delayed by him again. It was our intention to have had our July issue ready unusually early. We hope it will be quite as well received now. We print an extra large issue, giving full records of the National meetings, which, we trust, our always generous readers will appreciate. We want them *all* to read *the whole report*, that they may grieve that they were not there, and resolve *now* to go to Cleveland if they are spared so long.

The Boston Photographers are worthy of the highest praise. In the beginning they determined that nothing should be neglected, that would tend to insure the success of the Exhibition.

Committees were appointed, and *sub*-committees. Each man was detailed to do certain work, and, when the work was ready to be done, like sailors at sea in a storm, each man was at his post, and *worked* as if he had been drilled for a month. Each one armed with screw-driver and hammer, the boxes were soon opened, the hall draped, the pictures hung, and well hung. They set a good example at the start. Their example is worthy of emulation.

The proceedings of their last meeting came too late for publication in our last issue. Long live the Boston photographers to work with us, side by side.

Pay Your Dues.—The members of the National Photographic Association, are notified hereby, that their annual fees are now due the Treasurer, and prompt payment is desirable. Please remit by post-office order, or draft, at once.

H. T. Anthony,
591 Broadway, N. Y., Treasurer.

The Relief Fund.—The matter of the Relief Fund is in the hands of a competent committee, and an excellent one; but as there are many who could not attend the Exhibition, Mr. E. L. Allen, one of Boston's noblest men, has agreed to print stereo views taken of the Exhibition Hall interior; to place them in our hands at a nominal price, and we to furnish them to all applicants at 25 cents each, the profits to be appropriated to the relief fund. The views are now in our hands, five in number, four interior views showing the Hall as it appeared during the Exhibition, and one of the very beautiful exterior of the Hall. We will mail the whole set to any one, post paid, on receipt of $1.25.

Mr. Black has also agreed to supply us with copies from the negative, made in the public garden, of the members of the Association, on the same terms, and those we are prepared to mail on receipt of $1.50. We hope they will be purchased liberally, as no one knows how soon he may have to call upon the fund for relief.

While it is out of our sphere to notice public houses, it is but just to acknowledge here the courtesies of Messrs. Wrisley, Wetherbee & Co., proprietors of the *Revere House*, Boston, shown to our officers and committees during the sessions of the National Association. They will not be forgotten soon.

Mr. Joseph Dixon, of Jersey City, N. J., is, we regret to announce, deceased. He took up the experiments of Daguerre in 1839; invented the method of taking Daguerreotypes with a reflector, so they would not be reversed; he originated the process of photolithography; he perfected the collodion process, and assisted Mr. Harrison in finding a true system for grinding lenses. He has taken our Journal since its birth, we believe, and was an Honorary Member of the National Photographic Association. Our art has lost one of its oldest friends.

Mr. W. J. Land, chemist, with Messrs. Pemberton, Wilson, Taylor & Co., Atlanta, Georgia, has favored us with price lists, which must be very tempting to photographers in the sunny South.

We have received a list of the names of some sixty gentlemen, late members of the Berlin Photographic Society, who have seceded therefrom, and formed the "Society for the Promotion of Photography," under the Presidency of Dr. Herman Vogel. We wish success to them and their object.

The Commissioner of Patents has ordered that all copies of drawings be duplicated hereafter as required, by photography, and said drawings are ordered to be made in form and color to suit our growing art. Mr. Isaac Rehn, of our city, is to be photographer-in-chief, we understand. We shall have more to say presently on this subject.

Messrs. J. Gurney & Son, have occupied their new gallery, corner of Fifth Avenue and Sixteenth Street, New York, where we had the pleasure of seeing them. We shall have to lay over a more extended notice of their elegant palace until our next. We found them thronged.

American Lenses.—So great has become the demand for the American lenses of the New York Optical Works, as will be seen by their advertisement, Mr. Edmund Blunt has had to devote his whole time to their production and examination. These lenses are winning fresh laurels every day. The few we have tried, secure great results. Mr. Blunt's address is changed to 26 Burling Slip.

Pacific Railroad Stock Depot.—Our Western subscribers in the *middle* States will be glad to know that Mr. G. D. Wakely has just opened an admirable stock of photographic requisites at Omaha, Nebraska. His advertisement appears in this number. Mr. Wakely is highly recommended to us, and we are assured that fair and honorable dealing will be his rule. He is, therefore, worthy of the encouragement we hope for him.

Thanks to Mr. J. Inglis, Montreal, for stereo views of Montreal under the snow and during the freshet; to Mr. G. C. Robinson, Haverhill, Massachusetts, for several interesting stereos; to Mr. J. H. Hamilton, Sioux City, Iowa, for specimens of his work; to Mr. T. M. Schleier, Knoxville, Tennessee, for groups of children at play; and to Mr. Arthur Green, Hamilton, Bermuda, for a stereo of the American aloe and other views in his city.

"C. H.," St. Louis.—In our next.

A. D. Wiles.—Your developer being stronger at the points you mention, causes the effect you describe. It is certainly not desirable.

"Amateur."—The ordinary objective used in magic lanterns, is to be had of Roettger and others. The diameter is usually about 4½ inches in Mr. Marcy's lantern. None of your portrait combinations will answer so well.

ROBINSON & CHERRILL, LONDON.

Boston Public Library.

THE

Philadelphia Photographer.

Vol. VI. AUGUST, 1869. No. 68.

Entered, according to Act of Congress, in the year 1869,
By BENERMAN & WILSON,
In the Clerk's office of the District Court of the United States for the Eastern District of Pennsylvania.

OUR NEXT PRIZES.

Those who intend to compete for our next prizes, should be reminded that the time is flying, and that in six short weeks the competition must end. The time will not be extended, positively, for certain reasons.

Our intention is, as before, to use the successful negatives to print future illustrations for our Journal from, and we desire that they should be very good. We hope to secure at least one good portrait, one good composition group, and one good landscape. This we should be able to do very readily and promptly, among our thousands of talented readers. We care not how fierce the competition. The harder the battle, the greater the honor due the victor. We want to bring out the best talent of our country. Our object is to encourage the production of good work, and we expect to see something better than we have ever had before. *Try.*

It will be observed that we have given competitors their choice of $25, or a *gold medal* worth that much, properly inscribed. We were persuaded to do this by parties who felt that they would rather have a medal were they to take the prize—something solid and real, that they could hold in their hand and show to others. We like the idea, and are willing that competitors should have their choice. The judges will adhere rigidly to the stipulations of our offer in our May and June numbers, which be pleased to read again,—and, in addition, if they feel warranted in suspecting that negatives are sent without any merit about them, merely to secure sets of pictures, they will be discarded. *Try* one—*try all.*

OUR PICTURE—MR. ROBINSON'S METHOD OF WORKING.

In presenting American photographers this month with an example of the work of a celebrated English photographer, it may be interesting and not inappropriate to add a few words on Mr. Robinson, as a special representative of a distinct phase of photography, and on his mode of working.

Mr. Robinson stands almost alone, especially in the old world, as being at once the champion and the practical exponent of the art-claims of photography. Of course, there are few, who are familiar with the art and its capabilities, who do not assert the claims of photography to a position in the sacred sisterhood of the art; but Mr. Robinson's vindications of the pictorial power of the art have chiefly taken a practical form; he has produced *pictures* not simply landscapes, not simply portraits, not simply figures or groups pictorially treated, but, aiming to meet the painter on his own ground, he has selected and combined the materials presented by nature, so as to exercise something of the creative power in producing a pictorial composition which should tell its story without need for explanations.

After commencing life as an art student and painter, and many years ago exhibiting at the Royal Academy, Mr. Robinson became fascinated with photography, and a dozen years ago devoted himself to its professional practice. He has steadily, during that time, in the midst of very successful and exacting practice as a portraitist, undertaken to produce at least one composition every year, which he could put forward as a vindication of the art capacity of photography. His position has been, that what are termed the fine arts, such as painting, sculpture, etc., are but the vehicles through which the creative power of the artist finds expression, and that all these vehicles or media are, in their degree, plastic to such an end. In this sense he claims for photography a position as a medium for art expression as undoubted as that of painting. More limited in range, most undoubtedly, and less plastic in character, but precious for its truth and the minute beauty of its detail.

This idea of producing, at least once in each year, some picture for the credit of art, giving it the devotion of months of thought and much labor, without any view to publication or profit, is one worth attention, and one which, extensively put into practice, could not fail to advance the art. The full development of the pictorial powers of an art like photography must always be the work of enthusiasts. Much must be done without hope of immediate profit, if of profit at all. Let us take an example in one of Mr. Robinson's pictures, "Bringing Home the May," produced in 1862. It is a large oblong picture, forty inches long by sixteen inches deep, and was printed from nine negatives. It represents a scene common to English rustic life, when in the early spring morning a troop of happy girls have gone to the woods to gather the fragrant wealth of hawthorn blossoms for the May-day festival. It may be worth mentioning, in passing, that Mr. Robinson carefully eschews the attempt to produce imaginative pictures or historical subjects by photography; he does not attempt to illustrate "Footsteps of Angels," "Joan of Arc," or other similar subjects, which must be entirely dependent on the imaginative or creative power of the artist, and of which any dressed-up model must be but an imperfect presentment. Any combination which is possible in this day, and which, as having an actual existence, might possibly be brought before the camera, he regards as legitimate subject for the photographic art; and, however far apart the elements of the combination may be, he is willing to gather the parts separately wherever he can find them, and then join them in printing, so that they shall do no violence to nature and truth, and yet be satisfactory as pictorial art.

The mode of going about the production of a composition of this kind, is very systematic. The conception once formed, a complete sketch of the subject is drawn, the composition of lines and the balance of light and shade being carefully studied. The general effect of the picture being decided, the next question is, how many negatives will be necessary to produce, and how the subject may be most suitably divided, or what parts can be secured in one negative without sacrifice. Then, the landscape scenes which form the background, whether wood or water, mountain or plain, have to be sought and photographed at the proper season of the year, in the proper hour of the day, and from a point to secure the right lighting. The figures and other accessories have then to be secured in the open air or studio, in sunlight or shadow, but all in due, harmonious keeping. Each negative of the series must be secured, with printing powers suited by its force or delicacy to its place in the picture. Then the mechanical details of perfect or unseen junction or relative force, etc., require attention. The printing of "Bringing Home the May," required nearly eight days. The cost of producing each individual print, it is probable, would be too great to admit of the publication or general circulation of the picture, and it is only with a view to illustrating the capacity of the art, and as a general exercise and development of art-powers, that photographers could be expected to engage on such works, but there can be no question that such efforts tend to raise the art, both in fact and in public estimation. As these combined pictures have been but little attempted amongst American photographers, it may not be out of place to extract, from an English contemporary, a description of the picture of which we have just been speaking, as showing the possibilities of pictorial photography. The writer says:

"The subject consists of various groups of figures and landscape. These groups are connected in the composition so as to form one company, all girls, embracing young children and blooming maidenhood, all engaged in bringing home May blossoms, the fragrant wealth of English hedgerows in the advanced spring season. An admirable extract from Spenser, which is appended, will at once initiate the reader into the spirit of the picture:

> 'When all is cladde
> With pleasaunce; the ground with grasse, the woods
> With greene leaves, the bushes with blossoming buds,
> The younge folks, now flocken in everywhere,
> To gather May-buskets and smelling brere;
> And home they hasten, the postes to dight,
> And all the kirk-pillours eare daylight
> With hawthorne buds.'

"Nearly in the centre of the picture is a group of four girls, each laden with hawthorn blossoms, the central figure of the group bearing a large burden of the branches upon her head. This is the principal group in the picture, and upon it the eye instinctively rests first, in examining the composition; it is nearest and most prominent, most brilliantly lighted, and best made out.

"The figures are in full sunshine, and the breadth of light free from chalkiness, and the broad masses of shadow perfectly transparent and free from blackness, have a charmingly sunny effect. The pose of all the figures is easy, natural, and perfectly harmonious with the general action; but the position of the central figure, to which we have referred, is perfect in its simplicity and gracefulness, and might be employed, without altering a line, as a caryatis in a Grecian temple. To the left of this group is another of two girls, who are tardily bringing up the rear, one of them pausing whilst she shakes from her dress one of those long, straggling parasitic plants, which cling with such tenacity, and are familiarly known, in some parts of the country, as 'followers.' To the right of the central group are two other figures, one of whom is stooping and gathering together a large heap of the newly-cut hawthorn branches, the other waiting to assist in carrying them. Still further to the right is another group of two little children, who are toddling home in advance of the party.

"The background or landscape generally, is, for the most part, thickly wooded; but, through the trees, the eye travels far away over meadows into a charming distance. In the middle distance, immediately behind the groups, a fine tract of open country shelves away, leading the eye into the forest path, divided by rustic railings and a stile from the open. The arrangement of the picture does not leave need for much foreground; but this consists chiefly of some well-chosen and well-made-out wild plants.

"It is a May morning, and every figure is beautifully tipped with the sunlight, which pervades the picture. But it is early on a May morning, and the atmosphere is filled with the delicate, misty vapor which clothes the distant foliage with that delicate and fairy robe of atmosphere, which gives charm to English landscape scenery, rarely met with elsewhere. If the picture before us be filled with sunlight, it is not less filled with atmosphere. The thick, leafy, spring-like foliage of the background is thus thrown back from the sunlit figures, which tell the story of the picture.

"The first impression which strikes the mind on examining the picture, is a conviction of the admirable composition and chiaroscura, which at once satisfy the eye as masses without distinct reference to forms. The arrangement of lines and the general contour of the picture are especially pleasing, whilst the effect of light and shadow, the arrangement of light and dark objects, the perfection of gradation, and general breadth of effect are altogether satisfactory. The next impression produced, is of the complete harmony and subordination; everything takes its place admirably, and nothing obtrudes. It is harmonious in sentiment; the landscape is an unquestionable spring landscape; the children and damsels—there is too much of life about them to be perpetually called 'figures,'—are in the spring of life; the whole picture is pervaded by the feeling of spring-time. There is harmony in the action, purpose, occupation, and pose of each figure, which perfectly connects them as a whole, although divided into separate groups; and there is a feeling of gladness and freshness expressed in every part of the picture. It is harmonious as a composition, harmonious in gradation of tones; there is a perfect gradation in the sunlit and well-pronounced foreground objects, and gradation in the distant hazy woods. There are no crude, chalky lights or black, heavy shadows, no patch of white sky killing all the other lights in the picture. The masses of May-blossom in the bright sunlight, are soft and well made out, not mere masses of snow, and the sky has a pleasant atmospheric tint which suggests the season."

The illustration to our present number, is an example of a style of work which Mr. Robinson early introduced into portraiture, in which the combination of the natural foreground with a painted screen is made very effective in the picture. For the foreground several shallow trays, running on castors for easy movement, are kept planted with weeds, ferns, and wild-flowers. These with an occasional piece of rock, or earth, or the stump of a tree, are easily and quickly arranged for a variety of foreground effects; and a few painted screens representing a dimly made out distance, with a few clouds combined to produce a natural open-air effect, often very pleasing, especially with the portraits of children.

As a portraitist Mr. Robinson takes high rank, and has attained a rare degree of commercial success. His operations are simple and certain, everything like complexity being carefully eschewed. He has great faith in the artistic photographer's command over pictorial effect in the operation of developing, managing by the local application of the solution materially to modify the light and shade in the picture. A few of his remarks in a paper on "Development," in Mr. Simpson's "Year Book of Photography," are worth quoting here.

"The developer (consisting of a simple 20-grain solution of iron, with 20 minims of glacial acetic acid to the ounce) should be poured on with a full, free sweep. As little as possible should be allowed to flow over the edge, because it carries with it silver which is necessary to vigor; but, notwithstanding this, it is better to let a little escape than to cause stains and markings, which will certainly appear if there is any hesitation in the application. If the plate has been properly exposed, the image will come out gradually, but rather quickly, and in a short time it will have attained nearly sufficient intensity, but not quite, and it will be found that the intensification will proceed no further. Soon after the developer has been poured on, the experienced eye will detect, if they exist, any places that may appear too dark or wanting in detail in the finished print. These may be brought out by rapid and repeated applications of the developer to these dark places. This plan is wonderfully effective when black velvet forms part of the picture, and has been slightly under-exposed. If the developer has not become very muddy, it should now be poured back into the measure, and a few drops of silver solution added. If the iron solution *has* become very thick, a new portion should be taken. When this is poured on the plate—which, recollect, has *not* been washed—the intensification will be found to proceed in a very satisfactory manner. It does not always occur that it is advisable to pass the second application entirely over the plate. The possibility of partial or local development is an enormous power in the hands of an artist who knows how to use without abusing it. It will be found that the chiaroscuro of the picture can be very much controlled by pouring the intensifier on and off any particular part that it may be thought proper to lighten or cause to be more brilliant. The image may now be fixed. I prefer to use hypo myself for that purpose.

"If it should be found that the exposure has been insufficient, the first quantity of developer, before the silver has been added, should be allowed to remain for a long time on the plate, gently moving occasionally, to prevent stains. It is a curious and, as far as I know, hitherto unnoticed fact, that if the developer is allowed to remain quietly on the exposed film, development will go on without much intensification; but that if it is briskly moved or rapidly poured on and off, the image piles up quickly, without penetrating unduly into the shadows. A knowledge of this is useful to the photographer, because it enables him to produce the same results with differently exposed plates, within certain limits."

Our great aim in issuing photographs from month to month in the *Photographer*, is to stimulate progress in the art. History is said to be philosophy teaching by example. We aim in our illustrations to present photography teaching by example. "Things seen are mightier than things heard," Tennyson tells us in "Enoch Arden;" we therefore bring examples of the styles of all men of mark in our art, sometimes pictures wholly to imitate; sometimes partly to imitate and partly to avoid, always aiming to issue something which shall be instructive. We have on this occasion dwelt more at length on the character and practice of the individual, partly because his representative character and great success have given these interest; and partly because, being far away from competitive interests here, we could without impropriety dwell upon the aims, labors, and results of Mr. Robinson, for instructive purposes, without possible offence to any of our own photographic community. We hope on another occasion to give some details of his studio.

Those who were privileged to see the productions of Mr. Robinson at the late Exhibition, will not soon forget them. They were so widely different from anything we are accustomed to seeing here that they attracted the greatest attention, and most deservedly so.

The negatives from which our cheery little child-picture were printed this month, were kindly presented to us by Mr. Robinson. The prints were made by Mr. William H. Rhoads, No. 1800 Frankford Avenue, Philadelphia, on Clemons Albumen Paper. We rarely see so large a number of prints as we now have to use each month, printed so regularly and satisfactorily as are these by Mr. Rhoads, although he declares he could do them better if he could do them over again. We wish that all our subscribers could do as well, and that they could see the more elaborate works of Mr. Robinson.

DIAPHAN.

BY PROF. JOHN TOWLER, M.D.

THE name *Diaphan* I give to a process that has appeared before the public during the last ten years, under a variety of names; for a new name given to an old process converts the old process into a new one. This self-same process has been patented in Australia, England, and the United States. Notwithstanding this, it is public property, for it has been practised from time immemorial.

I would not dare to bring it before the public now as a new process, if I did not have a special object in view, which object is to guard the public—that is, the photographic fraternity—from being duped. The picture in question is exceedingly attractive, and many of my friends have been so far enchanted with it as to pay dearly for the right of producing the Diaphan, when they might have obtained it for a few shillings if they could only read. I have no doubt that those very friends, who have paid their thirty-five dollars for the secret, possess the work which contains a full description of the process.

The Diaphan is a colored photograph of great beauty, but no art; and it requires no artist to lay on the colors,—a child can do that part of the operation. The man that is running through the country and selling county, town, and room rights says so. He is right. There is no art required. He might still add, that the process is neither new nor his property. He does not go so far as this; on the contrary, I believe, he asserts that he obtained the process in Paris. That, of course, is enough to entitle the process to honor and acceptance.

Now, let us see if I can recollect how I used to make the Diaphan. In the first place, you print two prints of the same negative on plain,—that is, arrowroot or gelatine,—paper. You will find instructions how to make such paper in the "Sunbeam," or you can get it of your stockdealer. Albumen paper does not answer for the production of the Diaphan; at least, not for one of the prints, which is to be rendered quite transparent. The negative must possess good contrasts, without being harsh; and the prints must be printed, toned, and fixed in the usual way, and be quite bright when finished.

We will now proceed to the next step. Take one of the prints and immerse it in a colorless varnish, such as is used for the preparation of tracing paper used by surveyors, engineers, and draughtsmen. There are several formulas for such varnish. This consists essentially of colorless Canada balsam and spirits of turpentine; to this sometimes gum mastic is added. The varnish must be of such a nature as to remain colorless for years. This perhaps is, in reality, unattainable; for all such preparations are apt to turn yellow when exposed to the air. The print, after thorough immersion and soaking, becomes quite transparent. It is taken out and hung up to dry.

Now comes the coloring part of the operation, which a child is to perform, and can perform.

Rub on a ground slab of marble, or of glass, a cake of pink madder. Do not spare your color. Let the child cover the face, ears, neck, and arms,—that is, all the flesh parts,—with this color uniformly all over the surface as far as the outlines, on the *back* of the transparent print. Do not be afraid of laying on too much color. The child understands this part better than the artist, who, in general, is rather stingy with his colors, not the child.

If the hair of the model is auburn, red, or yellow, rub up a quantity of this color on the slab, so that the pencil can be filled with it, and thus transferred to this part of the portrait, and laid on uniformly with a dashing boldness, but on the *back* of the print, as before. Paint the dress, the gloves, the shoes, stockings, &c., each in its appropriate color, in an artistic slap-dash manner, without fear of consequences, so long as you do not overstep the boundaries of the objects. The child understands this, and makes no attempt at shading; for this is unnecessary, existing as it already does in the photograph itself.

Now we proceed to the final operation. The two prints are now superimposed, the colored print on the uncolored print, and in such a careful manner that the superimposition is perfect; that is, that eye is placed over eye, nose over nose, ear over ear, finger over finger, &c., in fact so accurately that they produce in combination but one single picture. In this condition they are pressed and mounted together between two plates of clean glass, which are closed around the edges with gum-paper or cement. This combination finally may be covered with a matt and ornamental edging, and fixed in a frame or case, as may be desired.

Without any jesting, the Diaphan is a very pretty picture; but there is no need of paying the piper so dear for a process which is public property.

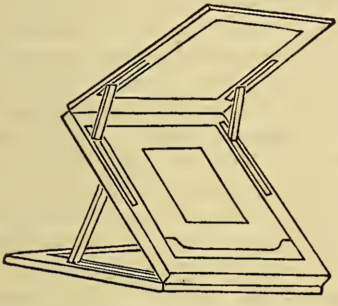
In three years the Diaphan will be again quite forgotten; another set of men will occupy the galleries. We shall then see, perhaps, an Italian or a Greek peddling the process as a new dodge of Greek painting, or of antique art exhumed from an artist's studio at Pompeii. And thus time rolls on resuscitating ancient art by the turn of the wheel.

Several of our subscribers have stated that a man calling himself Wilson has offered this process to them, and is now trying to secure victims. We trust that our readers will not forget our constant admonition to give *no encouragement* to such parties. We are glad to have Dr. Towler refresh our memory on the old process.—Ed. P. P.

THE REUTLINGER STUDIO.

I have to apologize for not keeping my promise, made in your April issue, to furnish you soon the further details of the construction of my atelier, as well as the different formulæ which I use in my chemical manipulations.

After leaving the dark-room, we enter an adjoining room in which the negatives are retouched, and where, in fact, all the retouching is done. This room faces, likewise, north. The artists who attend to the retouching of my negatives, are provided with a kind of desk; the retouching is generally done with a lead-pencil, but sometimes a brush and India-ink are employed. These desks are of the same kind as those employed by painters, and can be raised or lowered according to fancy. The upper part is cut out to facilitate the placing of the negatives, and below is a mirror which reflects the light through the picture. I add, however, a drawing for the better understanding of the construction.

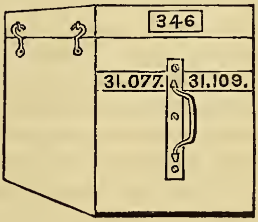


The printing department is one story higher, and cannot claim much merit, as I lack the space to construct a proper apartment for it. The fact is, I have to do my printing on the roof of the house, so you can easily imagine that I have, at such a height (six and a half stories from the ground), to contend with many difficulties. As I have not the right to make permanent fixings, I can simply place boards in such a position as to form a platform on the slanting roof, and at the edge a wire screen is provided, which will catch any frames that should happen to fall or slide down the inclined sides of the roof.

As regards the printing itself, it is divided into three parts. As the paper cannot be placed in the frames on the roof itself, there is, for this purpose, a room provided, which is about fifteen feet distant from the printing-place. One party places the paper into the frames, another carries the frames from the room to the roof and back again, and a third one superintends the printing proper. While writing on this subject, I must not forget to mention how I have arranged that my printers always know how many prints they have to make of a negative, a work that is not always properly controlled in large establishments. The printer receives from every negative the first rough copy; these he sews together in the shape of a small pamphlet, and on the back of the picture is made a memorandum by the person who examines the proofs, and who notes down how many good prints have been taken from it. When the whole number which has been ordered, is filled, the picture is torn out and the negative returned to the store-room. Each negative has a strip of paper attached to it, on which the number of prints to be taken, as well as the number of the negative, is written down.

I consider my way of storing negatives preferable to the one employed by most photographers. Generally, they are placed in large closets provided with racks, in which the negatives are placed. This takes, in the first place, a great deal of room, and, in the second place, is rather expensive.

I had boxes made, of the form of the inclosed drawing, thirty-one inches long, twenty-one inches wide, and twenty-six inches high for carte-de-visite negatives, and each box will hold fifty negatives. The interior is provided with twenty-five partitions, and each partition will hold two negatives placed back to back. These boxes are placed on shelves. They are provided with iron handles to facilitate lifting, and on the outside is a paper containing the register numbers of the contents, so that any desired negative can be found in a few moments. See drawing below.



The following are the formulæ which I use in my daily practice:

COLLODION.

Ether,	600 parts.
Alcohol,	400 “
Cotton,	10 to 12 “
Iodide of Ammonium,	6 “
“ Cadmium,	4 “
Bromide of Ammonium,	1 part.

And a little pure Sodium.

SILVER BATH.

Nitrate of Silver,	8 parts.
Distilled Water,	100 “

SILVER BATH FOR INTENSIFYING.

Distilled Water,	1000 parts.
Nitrate of Silver,	40 “

DEVELOPER.

Sulphate of Iron and Ammonia,	50 parts.
Common Water,	1000 “
Acetic Acid,	50 “
Alcohol at 36 per cent.,	30 “

For the printing process I use—

SILVER BATH.

Nitrate of Silver,	15 parts.
Distilled Water,	100 “

TONING BATH.

Water,	1000 parts.
Acetate of Soda,	30 “
Chloride of Gold,	1 part.

FIXING BATH.

Water,	1000 parts.
Hyposulphate of Soda,	200 “

Yours, truly,

Charles Reutlinger.

RETOUCHING THE NEGATIVE.

BY JOHANNES GRASSHOFF.*

The first thing to be done, is to work up and equalize any unevenness upon the face of the portrait, as, for instance, summer freckles and other dark spots; these are manipulated with the pencil until they are not to be distinguished from the surrounding parts of the negative; and in like manner the large shadows may be worked up, and particularly the abrupt glaring gradations sometimes seen upon negatives; strongly marked folds and other similar parts must also be softened down, in order to render the whole picture more harmonious.

Elaboration with the pencil is, however, not always successful, for in very transparent portions the lead is not sufficiently opaque, as, for instance, under the eyes, etc. In these instances a black crayon or so-called *creta polycolor*, may be used with much advantage, being employed in the same manner as a pencil; better results still, are obtained with ordinary black lithographic chalks, and, as the latter are generally very soft, and the particles easily disintegrated, they impart more opacity than black lead, and answer the purpose admirably.

When these means are unavailing, a circumstance which sometimes happens when the pictures print too deeply, and contain shadows of too dark and heavy a character, other methods of improvement must be tried. Ordinary black Indian-ink mixed with gum arabic, and used of the consistence of a syrup, may be applied with advantage. It is well to add a little glycerine to the gum in the proportion, perhaps, of two to four drops of the former for every ounce of gum, solution; it then becomes easier to manipulate, and, when dry, is not so brittle upon the varnish, and not so liable, therefore, to peel off from the film. By using larger or smaller additions of gum, the opacity of the coloring matter may be regulated with the greatest nicety; and, in parts where one coating is insufficient to render the plate of the requisite density, a second or often-repeated application of the pigment may be resorted to until the transparent film has been worked up to the satisfaction of the operator. One layer of color must always be perfectly dry before another is placed over it, and care must be taken that but very little of the pigment is taken up in the brush at a time.

With this gum pigment it is possible to effect an even coating over any large surfaces which may appear too transparent, as, for instance, the hands or arms, light clothing, or hair which has not been previously treated with powder; light brown beards or whiskers which print too deeply, particular parts of uniforms or costumes, when not too large, may all be treated with this description of color. The manner of operating, is to draw a large and well-filled brush as evenly as possibly over the surface, without paying very particular attention to outlines; then, after breathing upon the same, to keep the pigment in a perfectly fluid condition, a softening brush is used to distribute the color as much as possible, to form a perfectly even coating. Some practice is necessary for this description of work, but, after a few experiments, the operator will have no difficulty in succeeding. When dry, the extraneous color is removed from the outlines by the application of a moist brush.

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* Extracted from *Grasshoff's Manual* on the “Retouching of Photographs.”

Any spots or patches, which may be present in the coated parts of the negative, are afterwards worked upon and removed. By applying a thin solution of a black pigment upon the reverse side of the negative (on the glass, therefore) in certain parts, those portions may be made to print lighter; but, in this manner, owing to the thickness of the glass, the sharpness of the outlines cannot be very well controlled. If greater body is required, the pigment may be used without the addition of gum. When the color has been applied, the surface is breathed upon and manipulated with the finger until a pretty even grain has been produced. On the reverse of the negative one need not be so particular in the softening down of the color.

For producing uniform tinting upon the negative, sap red, sap blue, Prussian blue, burnt sienna, and gummi gutti are very frequently used, by reason of their transparency and the ease with which an even coating may be produced with them; but it is much more difficult to judge of the intensity of these colors than of black, which, when mixed with gum, is almost as easy to manipulate as the blue and red colors just named. It depends very much upon what one has been accustomed to, for, when well acquainted with the character and intensity of the tints employed, the desired results are easily obtainable.

With regard to the fine pin-holes and other imperfections of the negative, these are best treated with ordinary India-ink without gum; but the moistening of the brush with saliva should be avoided, as the pigment thus loses its binding properties, and does not furnish so opaque a coating.

There remains yet to be mentioned, the method for retouching negatives of oil paintings. Plates of this description are, as a rule, very difficult of improvement, especially when they chance to be of a very transparent nature. It sometimes happens that the different colors of the original produce the most startling contrasts upon the negative, and, in these instances, it is best to cover the whole surface of the plate with a uniform coating of dilute color mixed with gum solution; this should be applied upon the varnished side of the negative, although in very large plates, the glass side may also be coated, and, when dry, those portions of the picture which appear too darkly covered may be again freed from the tint by rubbing over with a moist brush or cloth.

Small imperfections in the gradation of tone may be improved by means of a lead-pencil, which can be used with special advantage in those parts of an oil-painting negative where the direction of the brush is traceable in the shadows and darker portions of the picture.

Finally, a few remarks are necessary on the treatment of landscape negatives. It is not always the case, that the sky, or, rather, the atmosphere, is so transparent as it ought to be, and then a little aid from the brush is necessary. When, however, the atmosphere is sufficiently clear and transparent, but somewhat detrimental to the effect of the picture, owing to its even and monotonous appearance, which is very often the case, its aspect may be improved by painting in a few cloud effects. This is best done, especially when the form of the clouds is a matter of no importance, and it is desired only to obtain a few different tints in the sky, by applying to the reverse side of the plate a little Indian-ink mixed with gum, in such a manner that a cloud-like gradation of tone is produced; this need not be done in a very elaborate manner, but may be roughly sketched out. By crossing the strokes, and laying one over the other, a greater or less opacity is produced, which, in the picture, will appear as light portions of clouds. A more beautiful effect may be obtained, and in an easier manner, by employing a fine black oil pigment mixed with a little linseed oil or varnish, together with a small quantity of siccative (driers). The advantage of using a color of this description is, that it remains longer in a moist state, and may be graduated to the finest degree, thus permitting of the elaboration of the finest cloud effects, which may be modelled from a pattern cloud negative taken for the purpose. The method of actually printing in clouds from another negative does not always yield satisfactory results, as it not unfrequently happens that the clouds do not harmonize with the picture to which they have been adapted; with painted clouds an alteration can at any time be effected. Although the thickness of the glass allows of the painting being of a rough description, still the beginner will do well to soften down his work before finishing; it must also be remembered that a negative treated in this way cannot be used until the oil color on its surface is perfectly dry. Sap red and blue are often used for painting in cloud effects, but, as previously stated, I always prefer to employ a black pigment for the purpose.

When it is considered desirable to cover over the whole of the sky by means of an opaque pigment, so that the atmosphere is represented perfectly white, red is the best color to be used, as, for instance, cinnabar, English red, Vandyck brown, etc. A good black may also be employed. The color is rubbed upon a glass-plate as finely as possible, by means of a glass rubber and water, and then some gum and a drop or two of glycerine are added; it is again thoroughly mixed to the consistence of a salve, and then placed in a saucer ready for use. But a moderate quantity of gum only should be used, and the color, when applied to paper or glass, should not be inclined to rub off; the glycerine is to prevent the pigment from becoming brittle. The red color is preferable for employment, as it possesses great body, and its manipulation, especially in regard to outlines on the varnished side of the negative, is easily controlled; and if any portion of the plate should not be very thickly covered or marked, the red tint prevents the transmission of light much more than a film of black pigment. Thus, it will be seen that red or Vandyck brown are particularly suitable for the purpose, and also for stopping out pin-holes, etc. If ordinary Indian-ink is simply used for covering the sky, a pigment which, in many cases, is amply sufficient for the purpose, a few drops of glycerine should always be added, for reasons above stated.

It may be mentioned, that instead of using gum pigments, temper colors may be employed; these latter never separate or split from the surface of the plate, an accident which not unfrequently occurs with other pigments during great heat. Some yolk of egg is mixed with about one-third of its volume of an oil of some kind or another, and stirred vigorously in a glass vessel; a little water is also added, and then the mixture is used with the color instead of gum and glycerine. Linseed oil, poppy oil, or Florence oil may be employed for the purpose, but linseed oil varnish is the most suitable. These temper colors allow of the application of several layers, one over the other; one coat does not dissolve off the other so long as the first one is tolerably dry, and as the pigment is somewhat difficult to dissolve in water, it should be stored away in as moist a condition as possible.

PHOTOGRAPHY AND TRUTH.

BY DR. H. VOGEL.

We often hear from admirers of Photography that this young art represents the pure truth, the true counterpart of nature.

This sentence is repeated by thousands of thoughtless persons, and has almost become a dogma. We are willing to swear to the correctness of photographic representations, and even the courts of justice have admitted them as evidence.

But, is the correctness of photographic representations really absolute? I venture to say no, even at the risk of being called a heretic. Photography applied at the right place and in the right manner will furnish representations more correct than any other art, but absolutely true they are not, and because they are not absolutely true, it becomes important to trace the sources of error, and of these there are many.

I will begin with optical error.

A picture which has been taken with a lens that does not draw correctly, and where the lines that should be straight at the corners appear to be curved, can certainly not be called a correct one. Many persons may not notice the incorrectness, nevertheless it exists. Some will say that a correctly drawing lens will avoid these errors. True, very true, but let us examine the pictures of high buildings which have been taken with a correct drawing lens from a low standpoint. The lines which should be vertical will converge toward the top. Can this be called correct? But you will say the reason of this is that the camera was not placed level. Very good, but let us now try a Globe or a Pantoscopic lens, and take the view of a long street: how the perspective deepens; how enormously large the nearer houses appear, and how very small are the objects in the distance. Houses that are distant a hundred paces look as if they were half a mile away. Is this truth? No, certainly not. And yet the lens draws correctly, and the camera has been placed exactly on a level, and the perspective is mathematically correct; a draughtsman could not make it any better.

But where lies the mistake? The angle of vision is too large. Unfortunately, this cannot always be avoided, and curious enough, it affects straight lines as well as curved ones. Take, for instance, a pile of cannon-balls. An artist will represent them as circles; now take a picture of them with a wide-angle lens, in such a manner that they will appear at the edge of the picture, and instead of circles we will have ellipses. This is, mathematically, easily explained. Every ball will send a conus of rays on the optical centre of the lens, and this conus will be cut by the plane of the picture as an ellipse when it falls in any other direction but at right angles.

A photographer showed me the view of a castle which had been taken with a Pantoscopic lens. In front of the castle was a row of statues, and it was really comical to notice how the faces and the bellies grew wider and broader towards the edge of the picture, and the slender Apollo de Belvidere, who unfortunately happened to be at the extreme edge of the plate, had such a broad face and a belly of so large a circumference that he looked like Dr. Luther.

Again, is this truth? And unfortunately, these are not the only sources of error; there are a great many more.

In your number for June, 1865, you published four heads, portraits of the same person. They were intended as studies of lighting by Loesher & Petsch, front light, top light, side light, and oblique light. In the first picture the man was dull and stupid-looking; the second gave him an angry and savage expression; the third gave him a cunning look: which of the three was correct. I say not one of them. The truest representation was No. 4, where a combination of light effects had been employed, and we see that the mode of lighting can become a source of error, and this does not only hold good for portraits, but refers to landscapes also. The view from the Rochersberg at Bingen, on the Rhine, had often been described to me as most beautiful. I visited the spot, in the company of friends, several times, and we could not see any beauty in the view. At last I visited the spot again, but not as before in the morning, but in the evening, and then the view was charming. But aside from the direction of the light as a source of error, there is another circumstance which has much influence on the correctness of photographic representations. Generally speaking, the lights are too white and the shadows are too black in photographic representations. This is a radical error, which has its origin in the nature of the art, and the avoidance of which is sometimes very difficult. The error is most striking in taking the picture of an object on which the sun shines with full force. If we expose for a short time only, we get the details of the light parts, but the shadow is a black spot without any detail whatever. If we expose for a long time we will get some detail in the shadows, but the lights will be overexposed to such an extent that all the details will be wanting. Can you call this correct?

This is the reason why we have so much

difficulty in our studios when we wish to produce a properly lighted picture. We keep the lights more diffused and the shadows lighter than what a painter would do, and the latter are often utterly surprised when they see a model in the gallery under such an artistically faulty illumination, and see the resulting picture afterwards, correct in lights and shadows.

In taking landscapes, architectural objects, and particularly interiors, we cannot control the light with the same ease as in portraiture. I took once the photograph of a chemical laboratory. The room was large, with an arched ceiling. In the picture you would see the tables, furnaces, retorts, lamps, etc., etc., everything perfectly plain, except the arched ceiling; it was too dark. I made other attempts, with twenty, thirty, and forty minutes' exposure; at last I saw a trace of the ceiling, but now the objects near the windows were so much overexposed that all the detail was lost. The result was four pictures, not one of which was true. Finally, I reflected sunlight on to the ceiling. But this circumstance of the light parts being too light and the shadows too dark in photography, makes itself felt sometimes in very simple operations, for instance, in reproductions of prints.

One of our photographers was called upon for a reproduction of "Kaulbach's Battle of the Huns." The copy was an excellent one, but the background was too dark, too black, not hazy enough. The customer refused the copy and demanded another picture. A second copy was made with longer exposure. Then the background had the hazy appearance of the original, but the figures in the front, which should be bold and black, had a dusky gray look. Finally, a good result was obtained by retouching the negative. But can this be called truth?

I have purposely selected simple examples to substantiate my assertion, that it is difficult to make truthful photographs. We now have to consider another point, the worst of all, and that is color.

In photography the cold tones will be rendered too light, while the warm ones, such as red and yellow, will be reproduced too dark. As an illustration, I may mention the photographs of Hildebrand's painting, "Sunset on the Ganges." A glowing red sun with burning clouds of chrome-yellow on an ultramarine blue sky. And now what does the photograph show? A black disk surrounded by black thunderclouds. The sun looks like the solar eclipse at Aden.

I might multiply examples, but what I have said will be sufficient to enlighten those who pretend that a photographic representation must, under all circumstances, be a correct one. Fortunately for the art, nearly all the sources of error can be avoided by the enlargement of suitable lenses, a proper position of the camera, proper illumination, the employment of original and negative retouching. It constitutes the *art* of photography to present the reality true and beautiful.

PROF. MORTON'S LECTURE ON VISION.

AT THE ACADEMY OF MUSIC, JUNE 1ST.

THIS Lecture was, in its interest and success, a repetition of the six others on the same general subject of Light, which Prof. Morton has delivered at the Academy on previous occasions. We enjoyed the privilege of a view behind the scenes just before the rising of the curtain, and were sorry that all the audience could not have likewise seen and estimated the extent and completeness of the preparations made for their entertainment.

At the rear of the stage, mounted on a platform, reached by a double flight of imposing steps, was a large magic lantern, with its adjuncts of gas-bags, weights, tables for objects, and other articles, about which hovered several anxious assistants, putting the last finishing touch to all their arrangements. At the foot of these steps stood on the floor another lantern, with its adjuncts and attendants, which was to be used in the shadow pantomime. Here and there, about the stage, stood groups of figures in extraordinary costumes, with heads of birds and bodies of beasts, who were to perform their parts in the same illustration. Down the centre of the stage ran an iron track, on which stood a truck with a table carrying a pair of lanterns, with two assistants, one to manage each, with the usual accompaniment of gas-bags and various special appliances needed in the display of the phantasmagoria. At another point appeared some immense disks covered with brilliant patterns, and the machinery to revolve them, waiting for their turn to act as thaumatropes. Yet another lantern with its adjuncts, and also a disk of apertures, stood near by for use with these latter, while in sheltered nooks of the green-room stood the fragile electric stars, and on a trap below the stage stood the battery and coil which was to rise at a call from its lower region and inspire them with light and life.

The forests of side scenes, which at either hand lined the stage, and the canopy of closely-hanging curtains and borders which roofed it in above, formed a fitting boundary to the view, and added to the impression of vast size, which this truly immense stage conveys. The entire scene, with its combinations of the grotesque and the practical, its busy animation and order, amid numbers and seeming confusion, produced on our minds an impression which we shall not readily forget, and brought before us most vividly a conviction of the vast amount of labor and intelligent planning which are implied in these illustrated lectures on the grand scale.

At a few minutes after eight o'clock, the house being densely crowded as on former occasions, the curtain rose and the Professor stepped forward, and began his lecture with an easy and graceful delivery, speaking without notes, and also without mannerism. Prof. Morton has, without doubt, the combined faculties, not often possessed, of thorough knowledge of his subject, united with a rare facility of making its points clear to those not conversant beforehand with any of its details.

The subject treated in this lecture was that of "Vision." The structure of the eye and its relation to ordinary lenses was first clearly and concisely explained as follows:

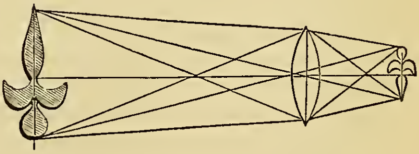
"The act of vision is accomplished by means of a special organ or pair of organs, the eyes, which are partly physical, or, as we may say, instrumental in their action, officiating exactly as certain lifeless and inorganic structures, such as we artificially construct, would officiate, in collecting and distributing the light rays; and partly physiological in their structure, calling into play those conditions of life, about which we know but little, and which we can in no wise artificially reproduce, or by any amount of skill ourselves construct.

"Regarded as an optical instrument, the eye consists of a spherical envelope, called the 'sclerotic coat,' having set in its front a transparent dish-shaped window-pane called the 'cornea,' and pierced behind to allow passage for the 'optic nerve.'

"Behind the 'cornea' is a variously colored diaphragm or partition, called the 'iris,' having in its middle a circular adjustable orifice called the 'pupil,' behind which, in turn, we find a curiously-constructed biconvex lens, called the 'crystalline lens,' and finally lining the interior walls of the remaining cavity, the 'choroid coat,' supporting a closely-woven network of interlacing nerve-roots, 'the retina,' all branching from the optic nerve before mentioned. The space between the cornea and the crystalline lens is filled with a liquid called the 'aqueous humor,' and the large cavity behind the crystalline lens with a gelatinous material called the 'vitreous humor.' (A diagram was here projected upon the screen, by which all these parts were exhibited in their proper positions.)

"It will be evident that we have here in the first place, a lens, capable, like our ordinary lenses, of forming an image upon the inner wall of the eye-cavity, or retina.

"We will then inquire, in the first place, how a simple lens brings about such a result as the formation of an image.



"The diagram now upon the screen shows this, almost without need of further explanation. The rays from the summit of the object, which, without the lens would be scattered over all parts of the screen, are each differently bent by the different parts of the lens which it encounters, but so as to be united in a single point upon the screen. The same thing happens for each other point of the object and its emitted rays, and the result is the production of an image, as is shown. This image, moreover, is inverted; you see how this comes by a mere glance at the diagram; but, to prove to you by actual experiment that it is so, I will employ a curious and amusing illustration.

"I have here a little aquarium made to fit the lantern, filled with tiny fish of various kinds, which I shall use to illustrate the subject in question.

"This little aquarium has been now placed behind a lens, and strongly illuminated by a lime light. The rays of light that pass from this aquarium and its denizens to the lens, are then bent by it, as the diagram shows, and produce the enormous image which you see upon the screen, inverted, moreover, with the water surface *below*, the fish swimming *on their backs*, and everything else topsy-turvy. (The appearance of this experiment was most curious, and it elicited continued applause. Crocodiles, sea serpents, whales, and nondescript monsters, such as might realize our idea of the antediluvian creation, tumbled about in uncouth yet ridiculous gyrations upon the screen, which seemed, indeed, to be no screen, but rather the glass side of a vast aquarium or section of the ocean.)

"Such, then, is the condition of the eye as a lens, and such the manner in which the image, which it projects upon the retina, is inverted. Why, then, do we not see all things upside down?

"Here comes in the second part of the eye's constitution. The retina is not simply a dead screen, receiving and reflecting the various impressions of light which fall upon it. It is a forest of *living* nerves, which not only can distinguish between the intensities and colors of the rays which touch them, but also recognizes *the direction in which they come.* Thus, the inversion of the image, as far as the sensation of the retina is concerned, *does not exist.* If the retina perceives the rays from the summits of objects as coming *down to it*, and those from the bases as *coming up*, and thus regarding *the object* and not the (to it) invisible image formed on its own substance, this nerve-screen *sees* everything in its proper position. It is a natural error to think of the eye as looking at the image formed on its own retina, but a little thought will show us that such an idea is parallel to the absurdity of hoping to see one's own face without a glass or equivalent reflection.

"It is then upon the sensitive screen of the retina that the light rays, collected and grouped by the eye-lens, make their impression. The nerves of this organ, like those of others, have certain limits to the range of their coexistent perceptions. Thus, just as we cannot hear a whisper in presence of the rattle of a railroad train, or taste a delicate flavor if mingled with burning pepper or a bitter draught, so we cannot perceive a faint impression of light in presence of another of far greater intensity. By careful experiment it has been proved that when two illuminations differ by more than sixty-four times, the fainter fades out or ceases to be appreciated. This is why the stars are invisible during daylight. The scattered sunlight reflected from the atmosphere is more than sixty-four times as bright as the stars, and it is only occasionally that a planet overpasses this relation and becomes visible in daylight.

"For this reason, also, is it that until lately the luminous bodies, called 'flames,' attached to the sun could only be seen and studied during a total eclipse. It was not the bright disk of the sun which interferred, for this might have been covered by an appropriate screen, but the general, diffused light from the atmosphere, which, being more than sixty-four times as bright as the solar flames, prevented us from seeing them. These prominences, as seen during the eclipse, I now show you by actual photographs, taken in Arabia during the eclipse of last year, and by others taken in Spain in 1860. An ingenious plan, has, however, been discovered simultaneously by M. Lockyer and M. Janssen, for obviating the difficulty before experienced, and studying these flames any day without an eclipse."

The general method of prism analysis of light was here explained by the aid of diagrams projected on the screen, and its application in the above case was described.

(See pp. 82 and 83 of our March number, 1869.)

"Passing over other important, but at the present time less imperative matters, we will next consider the means by which the eye judges or attempts to judge of the size and distance of objects.

"Within moderate limits, our judgment of the distance of objects is undoubtedly made by that surveying process on which the stereoscope is based, in which the two eyes, like surveyors at either end of a base line, measure the angular directions of the same object, and telegraph their results to the central office in the brain, where the necessary trigonometrical work is instantly executed, and the distance thus measured.

"But this applies only to moderate distances. As the astronomer finds that the diameter of the earth will give him no appreciable difference of angle, by which to calculate the distance of the nearest fixed star, so the 'surveying' eyes find themselves unable to measure the distance of far-off objects with their short base line of two and a half inches, and are reduced to mere conjecture founded on the apparent dimensions of familiar objects, their clearness of detail, and the like. That this is so, all know from their own experience when placed in unaccustomed localities, as on the ocean, or on the prairie, or amid the gigantic vegetation of the tropics.

"But I propose to demonstrate to you directly that your eyes alone cannot inform you reliably as to the distances of objects, if unaided by a knowledge of their actual magnitude. To this end I will cause various figures to appear on this screen (which we have been using already, and which is fixed to its position), in such a way that it will not be your eyes, but only your reason, which can convince you that the images viewed are not approaching from and receding into vast distances."

The first arrangement employed for this purpose was the phantasmagoria. A minute speck of light here appeared upon the screen, as from the far distance, and, as it advanced, developed in the shape of a beautiful statue, which, coming nearer and nearer, towered up to the very ceiling, and seemed ready to step into the orchestra. It then retreated into the invisible distance again, and changed into a skull, which advanced in like manner, and, when of frightfully gigantic proportions, and such seeming nearness that a touch might topple its vast crushing mass upon the audience, it gradually melted away, and turned into a lovely face.

The entire space of the stage seemed to be occupied by a vast tunnel, from the far depths of which a locomotive advanced with steady rush, towering up to gigantic size, until, when some twenty-five feet high and about to plunge into the orchestra, a whistle sounded, and tunnel, locomotive, and all melted away into an ocean grotto of the sea nymphs. From the depths of a vast cavern advanced a grisly skeleton, who, just when he seemed ready to crush the adjacent spectators by his next footfall, waved his arms, nodded, and, turning round, sped back into his dreary tomb. Angels flying forward from a cluster of stars, statues advancing and retreating through vast vistas of colonnades and galleries, and vast colored balls that rolled and unrolled their intricate convolutions, further illustrated the same points.

There was next introduced, in further demonstration, the "shadow pantomime," which it would require more space than is allotted to this report to describe, but which we can honestly say fully deserved the enthusiastic applause which it received, and the actual shouts of laughter which it elicited.

One of the happiest hits was the hatching of eggs by gunpowder, and the vast and rapid growth of the extraordinary fowls produced. The lecturer asked the indulgence of his audience for any compromise of scientific solemnity and formal precedent which this illustration might involve, and we feel sure that none present but might congratulate themselves on his venturing from the beaten path in this particular. We, for our part, shall never forget the at once astonishing and ludicrous effects produced, nor the principles which they illustrate. The immense size of the stage in this building, offered for such arrangements unparalleled advantages.

The subject of persistence of vision was then illustrated, first, by large discs six feet in diameter, with devices of balls, rings, etc., painted upon them, and rotated, while they were illuminated by rapidly recurring flashes of light. All the effect of the best zoetrope was thus displayed to the immense audience, with far greater clearness than in the ordinary instrument, for there was no seeming interruption to the view. The great discs stood directly before the house, and were directly viewed with no intervening object. The same subject was also illustrated by several electric wheels, which were decidedly the most beautiful things we had ever seen. One appeared to be a great star, flashing countless and ever-changing colored rays; another was an immense wreath of scintillating luminous jewels. No words can convey an idea of the beauty of these things, for nothing that one has seen makes any approach to them in their curious combination indicated, not expressed, by the words *luminous jewels.*

The phenomenon of subjective colors was then illustrated by an arrangement in which one and the same light was made to appear of every color, while actually unchanged. This subject concluded the lecture, which may be reckoned a thorough success, reflecting great credit on all concerned.

Among the numerous assistants, whose aid was required for the proper development of this elaborate series of illustrations, we noticed Mr. O. H. Willard, whose glass-pictures are so widely and so favorably known, and to whose skill and energy the accuracy and effect of many of the experiments was due; and Mr. C. F. Moody, whose lectures on chemistry, at the Institute last winter, gave such general satisfaction; while, as on former occasions, our distinguished friend, Mr. Coleman Sellers, filled, with his usual ability, the difficult part of stage manager.

* * *

Good prints are worth all the effort you can put forth to secure them. If you think photography is a mere mechanical business, and success more dependent upon good luck than careful manipulation, get out of it. You are in the wrong business.

WRINKLES AND DODGES.

A little alcohol added to starch paste will prevent it from souring.

The discolored albumen in a printing bath may be precipitated by boiling.

To prevent the blistering of albumen prints, I use conc. sulph. ether in the hypo fixing solution (about ¼ ounce of ether to 20 ounces of solution). E. M.

After correcting the bath by the addition of permanganate of potash, nitric acid may be added to an appreciable degree without injury.—M. Herzog, in *Photo. Archiv.*

Picking up a number of your journal this morning in order to refer to some formula, it struck me that it was the duty of every subscriber thus benefited to contribute their mite to the general good. Thus thinking, I ran over in my mind what little items I could send; one, it occurred to me, might be some advantage: it is the use of carbolic acid in the negative bath (I got the idea from one of your contributors in a last year's number). I think it is the best preservative of a bath I have ever tried, having used a 2-quart silver solution containing carbolic acid for over 4 months (and dipping on an average 10 plates a day), with the greatest imaginable success, it working beautifully up to the last, and I only stopped on it, on account of the excess of alcohol and ether. Adding more carbolic acid and boiling it down, the largest amount of dirty deposit I ever saw come from a bath was the result. I added the proper quantity of water, set it in the sun for a few days, dropped in about 15 drops nitric acid, and the results for the last two months have been excellent, and the bath shows yet no sign of failing. For those of your readers who may wish to test this, let me remark, that it is necessary to boil the bath to dryness after adding the carbolic acid (1 drachm to a quart is about right, I think). After boiling dissolve again and filter. The solution will be of a rich red-yellow color. Set it in the sun for a few days, make slightly acid, and it will be fit for use. Another thing I can recommend is the use of chloride of lime in the toning bath in place of soda; by using this carefully the tones produced are warm and pleasing, and the gold is not precipitated so much, so that if any is left in from one batch, it will have still good toning qualities the next day. My formula is a quart of distilled water, 2 drachms saturated solution of chloride of lime, a pinch of salt, and then let it stand several days, as long as possible; for, in fact, the older it gets the better; put in the requisite amount of gold for the number of prints, a couple of hours before using; after toning, pour it back into the bottle, add about 20 drops of a saturated solution of chloride of lime and a little salt, and it will be ready for next day's toning.

NOTE.—Let the saturated solution be made up several days ahead. Once more. I have seen several wrinkles to get rid of drops collecting on silvered paper, in drying. A sure thing is to breathe all over the albumen surface before silvering, or else hold the paper over a pan of hot water for a few seconds. I hope I have not tired you with these things. Should you think any of them useful, well and good; if not, drop this in the waste-basket.

Yours very truly,

C. H.

ST. LOUIS.

I inclose sample of tones from yesterday's prints and negatives.

They are very good.—ED. P. P.

PURITY OF BROMIDES.

BY M. CAREY LEA.

As iodine and bromine for the most part are found in nature associated together, and are extracted together and separated by fractional distillation, it very frequently happens that bromides will contain iodides and iodides bromides. Of course if proper care is taken, if the iodine and bromine are prepared completely free each from the other, the resulting iodides and bromides will be pure, but the necessary precaution is in many cases not taken.

My attention has been especially called to this subject by one of those very disagreeable mistakes from which one may be made to suffer. A number of ounce bottles furnished me by a dealer in chemicals of reputation, as bromide of potassium, and labelled all as such, proved to be some of bromide, and some of iodide, promiscuously mixed. The examination which this required was naturally extended to a number of other specimens of bromides, with a view to ascertain their purity as respects iodides.

The result was not very satisfactory. Almost every specimen of bromide of potassium, of cadmium, and of ammonium, gave indications of containing iodide. There was, however, a very great variation in the amount of this impurity, some specimens being greatly better than others.

I cannot but think this subject very interesting in connection with collodio-bromide dry plates. Different photographers have met with very different results in attempting this process, and perhaps something of this may be ascribable to the purity or impurity of the materials they have worked with.

Bromide of silver remains easily in suspension in collodion, and has comparatively little tendency to fall to the bottom. Iodide of silver is rapidly precipitated. In fact if the attempt be made to produce an iodo-bromide film by sensitizing ordinary iodo-bromide collodion, the mixture becomes curdy at once, and a precipitate falls. In trying this experiment more than once, it has seemed to me that not only the iodide went down as a precipitate, but that it carried the bromide with it; there was, therefore, not the mere loss of that portion of the sensitive material, but the entire deterioration of the mixture. Consequently it has seemed to me not improbable that if the iodide be present in less amount as an impurity, it may still exercise an unfavorable influence, and diminish the smoothness and equal action of the mixture.

I have thought, therefore, that it would be convenient for photographers to have a simple and effective test by which to measure the purity of their bromides. The *copper test* has seemed to be well adapted to the case and is applied as follows:

In 2 or 3 ounces of water, dissolve a drachm of sulphate of copper, and 2½ drachms of ordinary proto-sulphate of iron. Filter and keep in a corked bottle.

To test a specimen of bromide, dissolve a few grains of it in about a drachm of cold water. Add to it 2 or 3 drops of the copper solution. If a dirty whitish cloudiness at once appears, the specimen is quite impure, the greater or less quantity of precipitate marking the degree of adulteration, but any precipitate showing itself immediately, indicates a considerable amount of iodide. If no troubling shows itself, set the test-tube aside for some hours. If by this standing some light-brownish flakes collect at the bottom, a small amount of iodide is indicated. Lastly, if by standing the liquid becomes only a little troubled, a trace of iodide alone is indicated.

My conclusions have been that in view of the almost impossibility of obtaining a chemically pure bromide, it is best to fix the criterion at the point of getting an immediate precipitate by the addition of the copper solution; accepting the bromide as fit for use if it gives no immediate precipitate with the copper, but rejecting it if such a precipitate appear, even though it be but slight. When a thoroughly good specimen of a bromide is obtained, it ought to be reserved exclusively for collodio-bromide work, as such purity is by no means necessary for the iodo-bromide plates.

In making an examination such as this, it is always advisable to control it with a supplementary trial, made by actually adding a little of the iodide. In this way we make sure that our experiment is properly conducted and capable of detecting the iodide if present; we also see the reaction, and are prepared to recognize it.

In applying this test I have always found that the bromide excited a sort of restraining tendency upon the precipitation. Thus, suppose that a solution containing iodide only, one per cent., be tested, and then five per cent. of bromide be added. In this latter case, the precipitate produced by the copper solution will be much less than in the former, although the quantity of iodide present was the same in both; the presence of the bromide, without preventing the precipitate, diminishes its quantity.

STEPPING-STONES OVER ROUGH PLACES.

IV.

(Continued.)

BY GEO. H. FENNEMORE.

ON THE PRODUCTION OF SOLAR NEGATIVES.

THE only process which is suitable for the production of negatives, from which enlarged pictures are to be printed, is the wet collodion process. The greatest transparency, and a total absence from all fog, being the real requisites of all negatives intended for enlargements. To produce a good solar negative, then, two things are needed.: 1st. A very thin glass, and of a *uniform* thickness, because the heat of the sun, being concentrated upon the negative, is much more likely to break it, if it is thick and unequal, than it is if the glass be thin. Procure, then, a good sample of thin glass, as free from bubbles and other inequalities as possible. This is much better than plate-glass, which is very apt to break when exposed to intense heat. 2d. The chemicals should be in the best possible condition for making negatives of the greatest brilliancy and transparency. Too much attention cannot be given to this matter, for the reason that, in the camera for enlarging, the sun's rays ought to freely pass through the negative, or there will be extreme heating of the glass, which will most likely break it, and not that only, but it has the bad effect of requiring double and sometimes triple the amount of time necessary to print the enlarged proof according as it is more or less fogged.

To obtain this extreme transparency of the negative, your collodion, silver-bath, and developer, should be in good condition. Any of the above are good, if they produce good results in the ordinary negative process. Therefore, to give any formula here would be useless, but the following hints, if carried out, will be of much more importance: First coat the plate with collodion and leave it in the bath only long enough to properly coat it, and instead of shortening the exposure (as is usual with many operators), expose a little longer than usual. This is easily explained; for, if you expose barely sufficient, the developer would only bring out the detail in the shadows after it had been on some time, thereby increasing the tendency to fog, as well as producing too great a contrast between the opaque and transparent portions of the negative. Whereas, by giving a longer exposure, the image at once appears in the shadows as well as in the high lights. After exposure the plate should be well flooded with the developer, which should be allowed to run off, carrying all the free nitrate of silver with it. The image immediately appears, and the moment the details show themselves in the shadows, it should be plunged under a copious stream of water and well washed, after which it is fixed with cyanide of potassium (not hypo).

Next to good chemicals, the main success is due to operating quickly. The negative, when dry, ought barely to allow the detail in the shadows to be seen, and the lights ought to be sufficiently feeble to allow you to read through them; still it is better to allow it to be a little too intense than too feeble, for, if the latter, the lights in the enlarged prints will have a flat and dirty look to them. Above all things, avoid fogging. Solar negatives should not be varnished, as it destroys the uniformity of the film, and sometimes the whole beauty of the print. Great care should also be taken that no light enters the enlargement-room, but that which passes through the solar instrument.

(To be continued.)

THE ECLIPSE EXPEDITION.

We are happy to state, that, though a variety of unfortunate circumstances will prevent Mr. Rutherfurd, Dr. Draper, and our other experienced celestial photographers, from assisting in the observation of the coming eclipse, the great and rare opportunity will be well improved, notwithstanding. Thus, Dr. Curtis, with the Annapolis 7½-inch Equatorial, and a corps of assistants from the Washington Observatory, is already at Des Moines, and has succeeded in making excellent sun-pictures (showing details of spots, and faculæ), by way of practice.

Prof. Morton has also organized a triple party, in this city, under the auspices of the Nautical Almanac Office, and has secured the High School Equatorial of 6-inch aperture and 10 feet focal length (by Merz & Muller, successors to Fraunhofer), with clock-work driver; the Gettysburg Equatorial, which is a duplicate of this; and a 4-inch telescope, by Dolland, belonging to the University of Pennsylvania.

Through the kindness of Mr. Scott, of the Pennsylvania Railroad, transportation in a special car, to their destination at Burlington, Iowa, and its vicinity, has been obtained for the party and instruments.

The entire party will consist of the following gentlemen:

Prof. Henry Morton, Franklin Institute, Philadelphia; Prof. A. M. Mayer, Lehigh University, Bethlehem; Prof. C. F. Himes, Dickinson College, Carlisle; Mr. Edward L. Wilson, Philadelphia, Pa.; Mr. H. T. Anthony, New York; Mr. W. J. Baker, Buffalo, N. Y.; Mr. O. H. Willard, Mr. J. Mahony, Mr. H. C. Phillips, Mr. J. Zentmayer, Mr. J. C. Browne, Mr. E. Moelling, Mr. O. H. Kendall, Mr. James Cremer, Mr. W. H. Rhoads, Philadelphia, Pa.

This will constitute the Photographic portion of the party, allowing five operators in all to each instrument. Prof. J. H. C. Coffin, of the Nautical Almanac Office, will meet this party at Burlington, with an Astronomical Corps, and Prof. E. C. Pickering, of the Massachusetts Institute of Technology, will go with them to make physical observations. Also Prof James McClune, the astronomer of the High School, will accompany the Philadelphia party, with instruments for astronomical work. The various telescopes have been fitted with eye-pieces of special construction and instantaneous exposure slides by Mr. Zentmayer, and with light cameras furnished by the American Optical Company, New York.

There will also be taken a Chronograph from the Washington Observatory (which has been put in excellent order by Messrs. Chester & Patrick of this city), by means of which the dates of exposure of the various partial-phase pictures, may be accurately recorded, and thus rendered of infinite value as astronomical observations.

A temporary observatory has been constructed in West Philadelphia, on a very convenient location, kindly placed at the disposal of the party, by Mr. John Sellers, and regular drilling in the various manipulations required is being carried on there, and will continue until the time for starting arrives, which will be on the 2d of August.

SALAD

For the Photographer.

Don't forget our prizes.

The Relief Fund is popular.

The weather is anti-Photographic.

Are you a member of the National Photographic Association?

The National Photographic Association grows.

Photographs without sunlight — pictures of the eclipse.

How to paint Photographs.—Second Edition soon.

Have you copies of the stereoscopic views of the Exhibition? And of the group?

The employees of Messrs. E. & H. T. Anthony & Co. and of Messrs. J. Gurney & Son, New York (seven to seven), will row a single scull scrub race on the 31st of July.

The Relief Fund committee have one subscription of $500 promised already.

We shall publish drawings and descriptions of a number of new studios, beginning in our current number.

The photographers of the Eclipse Expedition are drilling in Philadelphia. They go to Burlington, Iowa.

A company has been formed in England for "carrying on the art, profession or businesses of accountants, auctioneers, valuers, agents, and *photographers.*" We would suggest that the *junk shop* art be added.

Stereoscopic views of the Exhibition are sold for the benefit of the Relief Fund. Buy them liberally. Also the group of photographers.

A Michigan photographer had a subject of the graceful sex lately who thought *behind the camera* was her place to pose. Perhaps for the good of both of them he had best have let her *persist* in that idea.

A spirited subject in a Western gallery was directed to fix his eyes upon a corner of the camera, when he responded with astonishment, "*What, both* on 'em?" So says our informant.

A sharper in New York has been advertising to sell "exact copies of U. S. Treasury notes at the rate of $1000 worth for $80," etc., etc. He supplied *photographic* "copies" to the would be speculators in counterfeits.

Photography Ahead. — One of our Yankee subscribers was in the habit of keeping his place open on the Sabbath, upon the plea that it was necessary, to accommodate those who were unable to have their pictures made any other day. The municipal authorities interfered, however, and made him close up. Not to be beaten, he secured one of Mr. Proctor's Night Photographic Inventions, and then branched out in the following advertisement, which we clip from a local paper.

"The invention of this instrument is calculated to effect a wonderful change in the business of Photography, and is the grandest achievement in aid of *morals* and *religion* of the present age, as it is hoped that Photographers will now no longer be importuned to break the Sabbath by those whose business confines them during the week, but come to ——— street during the evening. The inventor could hardly have *foreseen* the bearing his invention would have upon the morals of the community, but like many other valuable inventions, its greatest service is in a direction least calculated upon. Remember, 24 ——— Street, from 7 o'clock A.M. to 10 o'clock P.M."

THE RELIEF FUND.

At the Boston meeting of the National Photographic Association the subject of establishing a *Relief Fund* for the assistance of such members of the Association as become disabled, aged, etc., or for the relief of their families after death, was discussed with great earnestness at considerable length.

On account of the failure of our phonographer to send us his notes of the discussion in time we were unable to give last month a report of the discussion that took place. A running abstract now will not be out of place, as all should feel interested in the matter. None of us can tell how soon we shall have to call upon that fund, if it is established, and those who are not members of the Association should now become such and share its benefits.

Mr. H. T. Anthony spoke very highly in favor of such a fund, and moved that the subject be referred to a committee, to report as early as possible to the Executive Committee.

Mr. A. F. Potter stated the plan adopted by railroad engineers and conductors as being an excellent one, which is this: Suppose there are one thousand members. At the death of one of them each surviving one is to pay one or two dollars to the treasurer, and the whole amount given to the family of the deceased, making quite a handsome sum, and yet taxing the members very little. Mr. Potter said this plan worked excellently, and that it might be one or two years before any assessment would be made, but if it were two or three times a year, still the amount would be small.

Mr. Wormell stated that the plan was similar to life insurance. That the average number of deaths per thousand among parties insured in a number of the largest life insurance companies has been less than four during the last three years, so that, as photographers enjoy average health, the tax could be pretty closely guessed at.

Mr. Bundy stated an instance where the widow of an engineer received over $6000 from his association. The plan suggested he knew to work well in several organizations, and it would in ours, would induce membership, and bind the members together. Why should it not? Here we are scattered all over the country, unable to make large incomes, and then unable to leave much for the support of our families after death. The burden distributed among so many would be light, while the good it would do would be inestimable.

Mr. Sawyer thought we should not forget to take care of needy photographers while alive, when they are unfortunate, aged, etc.

Mr. Jones feared the organization of such a branch would induce photographers to join the Association who cared nothing for the advancement of the art. He was always willing to help a photographer when in need.

The discussion was long and earnest, and had we space we should like to give it all. The matter, as we stated in our last, was referred to a committee. This committee is now at work, and has already had $500 proffered to begin the fund. It is in good hands and will be worked up to a success, as will *everything* pertaining to the National Photographic Association. What we want now is for every earnest photographer who has the good of his art at heart, who desires its advancement, more work and better prices, *now* to come out and identify himself with the Association. No better investment can be made, though so small. No bread cast upon the waters will return sooner. The advancement of our art and the furtherance of the interests of each other are our two great principles. *Make them yours.* The Relief Fund will be established.

PRACTICAL NOTES ON PHOTOGRAPHIC SUBJECTS.

BY G. WHARTON SIMPSON, M.A., F.S.A.

Permanency Secured by Parchmentizing Prints.—My attention has recently been called to a method of securing permanency in silver prints, which has hitherto received but little consideration and less experiment. About twelve years ago considerable attention was called to the process of parchmentizing paper. It was found, by immersion in sulphuric acid, diluted with half its bulk of water, and then washing, ordinary paper acquired properties very like those of parchment, becoming tough, hard, and tenacious in an extraordinary degree; a strip of such paper, which, before treatment, would tear or break under a strain of seven or eight pounds, would, after treatment, support a hundredweight. The surface of the paper also became hard and finer in texture, engravings so treated acquiring a sharpness and delicacy from the contraction of the paper, not possessed before. The inventor, Mr. W. E. Gaine, proposed treating photographic paper in this way before printing, very rich tones, he said, being obtained with an unusually small expenditure of nitrate of silver. But a series of practical difficulties, such as the paper curling and being unmanageable, prevented that method from being carried out to any extent. It occurred, however, to Mr. Crooks, that if the treatment were applied to finished prints, a probable advantage might be secured.

The project was at once put into execution, a somewhat more dilute acid being used. "The result," says Mr. Crooks, "was one which I certainly had not anticipated. The tint of the picture, even in the most delicate half-tone, remained perfectly intact, while the powerful, yet uniform contraction of the paper added considerably to the sharpness; the paper was, besides, suddenly gifted with such great strength, that not only would it bear the roughest handling during the washing operation, without even the possibility of tearing it, but at any after-time, when finished and mounted, it would bear hard rubbing with soap and water and a wet cloth, without the slightest roughening or abrasion of the surface." The prints, it should be stated, were on plain paper, and, besides becoming so much improved in physical qualities, they were much improved in appearance, becoming sharper and more delicate, and the surface assumed a glossy character, without the excessive glaze common to albumenized paper. The question, how far increased permanency had been secured, could only be answered by time. Twelve years having elapsed since the prints were so treated, a tolerably fair conclusion may now be arrived at. The results of my own experiments, made at the time, have unfortunately been lost, but those of my friends, Mr. Spiller and Mr. Crooks, have been carefully preserved. The mode of proceeding, to afford fair opportunity for judgment, consisted in selecting a variety of plain paper prints of different tints, produced in different samples of paper, and, dividing them, one-half was then treated with the dilute sulphuric acid, whilst the other half was kept in its original condition. The two halves of each print were then mounted, side by side, on one piece of card-board, so that the slightest change might be easily detected. After a lapse of twelve years, the result is signally satisfactory. In every instance, the untreated half shows the sickly signs of change and decay; in every instance the parchmentized half remains perfect and unchanged, possessing still the pristine bloom of a fresh print.

So much for the result of the experiments of twelve years ago. At that time, I believe, the experiments were repeated by a few persons, but I do not remember any further published records. In a few experiments I made at the time, I verified the results described, and found but one disadvantage attending the operation, but it was a troublesome one: the parchmentized prints, when dried, had a rough, crumpled appearance, and the paper, having become horny and harsh, it was exceedingly difficult to remove this crumpled effect without very heavy rolling, an operation which at that time was less common and less convenient than it is in our day, a good rolling-press not being then, as it is now, considered as a necessary adjunct of every photographer's establishment. This difficulty would probably be now of little weight, as, if the prints were mounted before perfect desiccation, and then passed through the rolling-press, all unsightly appearance would be removed.

Although I have a profound conviction that carbon printing will eventually supersede silver printing altogether, especially if it be found, as I am recently informed it is in working Johnson's process, to be done at half the cost of silver printing, yet every operation which tends to increase the permanence of silver prints, is worthy of careful consideration. One certain advantage of this process of parchmentizing, consists in the fact that it must, to a certain extent, operate as a touchstone or test of properly finished prints. A properly fixed and perfectly washed print will bear the treatment with sulphuric acid without change, but, if it be imperfectly fixed or imperfectly washed, the obvious change produced by the action of sulphuric acid would lead to the rejection of the print. It may interest those of your readers interested in experiments for the production of permanent prints, if I reproduce here the instructions, originally published by Mr. Crooks, for parchmentizing the photograph:

Take a good sound stoneware jug, holding about a pint, and stand this in the centre of a large pan. Measure out 8 fluid ounces of sulphuric acid of the above strength (oil of vitriol of commerce will generally be found sufficiently strong to be used), and pour it into the jug; then measure 4 ounces of water, and pour that into the sulphuric acid —not hurriedly, but taking about ten seconds for the purpose. Stir the mixture now with a glass rod, cover the jug with a plate, and leave it until quite cold. Immediately the water and acid are mixed, great heat is evolved, and the necessity for taking the above precautions will be at once evident, since any breakage of the vessel through the sudden and great heat to which it is subjected will be attended with the most destructive consequences to almost everything that the acid touches.

Have ready three perfectly clean dishes, arranged side by side. No. 1 must be of good porcelain, quite dry, and in size about 10 by 12 inches. Nos. 2 and 3 should be very deep, and holding not less than half a gallon each. Into No. 1 pour the mixture of sulphuric acid and water. Nos. 2 and 3 must be filled with pure water, and into the latter a few drops of solution of ammonia must be added.

Now take the photograph (which must be quite dry), and, in the ordinary way, lay the picture side on the acid, taking great care to avoid air-bubbles; then instantly lift it up, and lay the plain side on the liquid. This will not be at all difficult, as the wetted surface curls slightly *inwards*, the acid producing an opposite effect to that of water. Any part which is not covered with liquid is now to be gently pressed under with a glass rod or platinum spatula, and the sheet left immersed in the acid for a space of time varying between a quarter of a minute and two minutes, according to the kind of paper on which the picture has been printed. Canson's thin paper will require about thirty seconds; Canson's thick, one minute; thin papier Saxe, twenty seconds; Whatman's and Turner's about ten seconds, if the size has been well removed; but if they still remain non-absorbent, two minutes will not be found too long. After the sheet has soaked for the proper time, gently raise one corner out of the acid, and, guarding the thumb and finger from injury with a double fold of blotting-paper, lift it entirely out by means of this corner, and allow it to drain for a few seconds; then, with a quick motion, completely immerse the sheet in dish No. 2, and move it about in all directions, so as to remove the strong acid from the surface as rapidly as possible. Lift it perpendicularly out of the liquid, and plunge it in again two or three times consecutively, and then transfer it to dish No. 3, where allow it to remain until the whole number of sheets are completed, or it becomes inconveniently crowded.

Dish No. 2 must be emptied and refilled with pure water, after about six sheets have been passed through it; and in dish No. 3 a piece of good blue litmus paper should remain, and as soon as this shows the slightest tendency to become reddened, a few drops of ammonia must be added, and the whole mixed well together; for if any, even the slightest trace, of unneutralized acid remain in the paper after coming from this bath, the picture will soon be inevitably destroyed; thus the necessity of keeping the liquid in dish No. 3 alkaline will be evident; at the same time experimentalists must not forget that long soaking in ammonia is prejudicial to the half-tints of the picture, and thus the *excess* of alkali must be but small.

After coming from the ammonia bath, the sheets will want washing two or three times in clean water, and they can then be dried in any convenient way. The paper, when dry, will have an uneven, crumpled appearance, and will require either to be carefully mounted or passed between rollers to render it smooth again.

* * *

Dry your paper well before fuming.

A QUICK DRY PROCESS.

BY J. J. BARDWELL.

I RECENTLY received a letter from a gentleman engaged in aerial photography making inquiries of me (by introduction from yourself) of the best method of taking instantaneous negatives on dry plates. It appears that he has been using the wet process, but his work requiring some little time to elapse between the sensitizing of the plates and the exposure, found in consequence considerable trouble in keeping them in a suitable condition to make a clean and perfect negative. Presuming there might be a dry process that would answer his expectations, he wrote to me, asking for my experience and advice in the matter. I therefore answer his inquiry with a formula that I have no doubt will satisfy his desire, and at the same time make the Journal a means of communicating the same to others who may wish to work a very satisfactory quick process. The formula is based on the old honey process of Maxwell Lyte, a man to whom many of the old photographers are under many obligations. He gave to the craft the metagelatine process; the phosphate of soda toning bath; was one of the first to recommend the use of bromides in collodion; and the first who recommended and brought into use bromide of ammonium in collodion.

In using the formula below, it is taken for granted that the nitrate bath has been prepared with care and that all the chemicals, especially the honey, are pure. The honey is, however, better old than new; a pure sample having formed crystals of grape sugar will give the best results. The development is by the pyrogallic acid method, the solution to contain the least quantity of restraining agent possible to work a clean negative with.

Honey, ...	4 ounces.
Water, ...	6 ounces.
Nitrate of Silver, . .	100 grains.
Alcohol, ...	4 drachms.

This solution, after standing some time, is to be filtered bright, and on after-sensitizing the plate it should drain for about one minute, and then the honey solution should be flowed over it twice or three times, letting it drain into a separate vessel, to be returned into the stock-bottle after the day's work is done, to be used again at your next opportunity, first filtering as before. The plates will keep for an hour or two in warm weather, and are the most sensitive of any that I have had experience with, and are in fact quicker than the wet process. They require great care in developing, but to one who is used to the dry plate practice will give no trouble. It is best to give the plate a substratum of a very thin solution of albumen, as the film is very apt to slip. I do not recommend a powdery collodion for this process, nor in fact for any dry plate, but I do find that collodion that works best wet is also best for the dry. The substratum has altogether obviated the necessity of a powdery film.

GLASS POSITIVES FOR THE MAGIC LANTERN.

BY JOHN C. BROWNE.

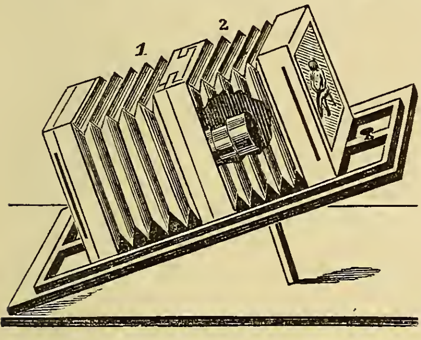
AMONG the many uses to which photography is applied, the manufacture of glass positives for the magic lantern is one of the most important as well as interesting.

The ordinary painted pictures exhibited years ago, answered well to amuse children, but something better was wanted to satisfy older persons. Photography came to the rescue, and has now almost entirely superseded the rude hand-made drawings which delighted our youthful days.

The process of making glass positives is not a difficult operation; but little apparatus is required, and does not necessitate any very important change of chemicals, so that every photographer can make positives from his own negatives. This offers a branch of photography but little practised, and of very great interest. The cost of a magic lantern is not large, and the satisfaction of exhibiting glass pictures of home manufacture fully compensates for the expenditure of time and money.

In an article on "Glass Positives," published in the *Philadelphia Photographer*, vol. iv, page 9, I described my plan of operations, giving decided preference to the wet process. Since that time several years' more experience have been gained, and I see no reason, at the present time, to change my ideas then expressed on that subject, but will now give the entire process more in detail.

For convenience in preparing glass positives, it is advisable to have two cameras placed front to front, or one regular camera-box, with an extension attached to the front, having a rack adjustment, so that the exact size of picture can be readily made. My apparatus is arranged in the following manner: A camera-box, 8 x 10, having the usual movable front for the attachment of lenses, is used for exposing the plate. I shall mention it as No. 1. On the edge of the front, extending up and down on both sides, are screwed strips of wood, of the form of the letter L, into which the extension or second camera-box slides. No. 2, which has a flange upon its front edges, corresponding to the grooved portion in No. 1, when placed together a perfectly rigid light-tight joint is made. This does not prevent No. 1 from being used for other purposes, when not in position for making positives. Box No. 2 has a large opening in the front or part joining No. 1; the upper end, instead of having a ground-glass, has also an opening made to fit either a 6½, 8½, or ½ size negative, with a dark-slide, similar to the slide of a plate-holder, immediately behind the negative. This box has a bellows and rack adjustment similar to No. 1, which is a copying camera. The proper length of focus for each box will depend upon the focus of the lens used, also upon the size of picture desired; 35 inches will be found sufficient for general work, although a much shorter focus will do perfectly well if small negatives alone are used. To place the boxes in proper order, unfasten the front of No. 1 having the lens screwed to it, and slide the two boxes together, front to front; draw out the slide of No. 2 and place the lens in its position in the front of No. 1; put the negative in the opening made to fit it at the upper part of No. 2, collodion side towards the lens. It is best to have a frame of exact size made to receive the negative, secured by two buttons touching the corners of the plate, so that it may be kept in proper position. Incline the boxes so that the line of vision will strike the sky or any white object. I much prefer the sky, and fasten the boxes upon a copying-board seven feet long, one end of which is raised so that the negative is clear of the line of houses or trees, which can be easily ascertained by looking through the ground-glass of No. 1. If possible, use a north light, and do not let the sun strike the negative.



By lowering the top sash of a window, and placing the upper part of the arrangement containing the negative on the sash, the lower part resting upon a table or chair, a very convenient position can be obtained.

The lens used in copying the negative is never capped; the exposure is given by drawing the slide of No. 2.

To make a picture, first draw the slide of No. 2, and focus very carefully upon the ground-glass of No. 1, using the rack-work of each box to obtain the proper size of picture, then close the slide of No. 2 which covers the lens; prepare the plate in the dark-room as usual, put it in the holder, and place in position occupied by the ground-glass; draw out the slide of the holder, and expose the plate, removing the slide of No. 2. After sufficient exposure, close slide No. 2, and then the holder, remove to the dark-room and develop. These are general directions, but each part of the process will be given in detail.

The oft-repeated maxim, "Clean your plates well," must be strictly observed in the commencement of operations, otherwise, the production of clean, transparent positives will be impossible. Although a change of chemicals is not absolutely necessary, I think that some failures may be prevented by giving my exact formulæ:

COLLODION.

Alcohol,	5 ounces.
Ether,	3 "
Iodide of Ammonium,	5 grains.
Bromide of Magnesium,	2¼ "
Cotton,	4 to 5 "

Before using, filter several times through cotton soaked in alcohol. It is a good plan to keep a supply of plain, unexcited collodion always on hand as a stock-bottle, also a bottle of exciting solution, made in the proportion of 5 grains of iodide of ammonium and 2¼ grains of bromide of magnesium to the drachm of alcohol. By adding 1 drachm of salted solution to 1 ounce of plain collodion, it will be excited to the proper condition.

NITRATE SOLUTION.

Water,	1 ounce.
Nitrate of Silver,	40 grains.

Make slightly acid with nitric acid, C.P. Iodize the solution by allowing a plate, coated with excited collodion, to remain in it over night. Filter.

DEVELOPING SOLUTION.

Make a saturated solution of—

Ammonia Sulphate of Iron (in Water),	1 ounce.
Glacial Acetic Acid,	1 drachm.

Filter, and use as a stock-bottle. This solution will keep an indefinite length of time in excellent condition. Crystals will form in the stock-bottle, after standing a number of hours, but that is of no consequence, as the strength of the solution is correct.

In developing a plate, use 5 drachms of water to 2 drachms of ammonio-sulphate of iron from the stock-bottle. During hot weather use ice-water to retard the action of the developer.

FIXING SOLUTION.

Hyposulphite of Soda, or Cyanide of Potassium.

Either will answer, but the action of cyanide appears to make a somewhat brighter picture.

Having prepared everything in order, coat the plate with collodion, and dip in the nitrate solution; remove the plate as soon as the oily lines disappear, drain off the excess of silver by resting its lower edge upon several thicknesses of tissue-paper (or bibulous paper of any kind), then wipe the back of the plate with a damp sponge or tissue-paper. This operation will take but a few seconds of time, which is amply repaid by cleaner plates and holders always in good condition. Place the plate in the holder and expose as described. The reason for having two slides, is to prevent any possible jar, either in exposing or closing the picture. The slide of the holder sometimes sticks, and requires some effort to raise or lower. By the use of two slides, the upper one made to draw and close smoothly and rapidly, all danger from jar is avoided.

The exact time of exposure is a little difficult to obtain at first, but a few trials will give sufficient experience to make good pictures. The time which I give upon a bright day is about fifteen seconds. Do not over-expose the positive; that is fatal to clear transparencies; rather err upon the other extreme of short exposure.

THE NEGATIVE.

Of course, it is desirable to have a good negative, as sharp as possible, and of medium strength in the case of portraits and landscapes, but, in making copies of engravings, I would advise undertiming the negative a little, so that the parts unacted upon by the light may be clear and perfectly free from fog. After fixing, intensify with any chemical that will answer the purpose. Remember that a foggy negative will not make a good transparency. The size is a matter of taste; 6½ x 8½ will be found large enough; but any size can be used by enlarging the boxes. It is not desirable to make the negative too large, if the intention is to make magic lantern positives. Negatives made upon glass, 5½ x 4½ inches, and reduced to the regular size of lantern slide, 3½ inches square, will be more satisfactory than larger pictures.

Do not attempt to make very small negatives and enlarge them to double or treble their original size to get the best results. Try always to make the positive smaller than the negative.

THE LENS.

Almost any good lens can be used to advantage, but I do not advocate one having a very short focus or a very small diaphragm. Preference should be given to a lens of about 8-inch focus, with a stop of ¼ of an inch, in reducing from 6½ x 8½ or ½ size to the magic lantern slide.

DEVELOPMENT.

After exposing the plate, the slides are closed as described, and the plate is removed to the dark-room. Develop as usual, but be very careful not to push the development too far. The picture should not flash out upon the plate at once after the application of iron, but appear slowly; judge of its progress by looking through the picture, using a jet of gas turned very low, or a small lamp, for the purpose. As soon as all the detail is out, stop further action by washing well with water.

Care must be exercised to avoid an excess of light in the dark-room. Use as little as possible, and do not allow the plate to be heated when developing over the light. Keep it moving constantly. Fix and wash.

INTENSIFYING.

Should the positive appear weak, and wanting in contrast after fixing, flow over it a dilute solution of sulphide of potassium, which will give tone and brilliancy to the picture. Wash well, dry, and varnish.

The application of sulphide of potassium is mentioned, because it is easily prepared and not likely to give trouble, *provided that it is not used in the dark-room in presence of silver salts.* I have used bichloride of mercury for this purpose, but it is unreliable, alone or with after-application of ammonia. Gold is sometimes used somewhat in the form of a toning solution, but it has no advantage over sulphide of potassium. Many positives do not require toning, and are injured by so doing. It is only when the positive wants contrast that toning is advisable.

THE FINISHED PICTURE.

All the high lights, the sky, for example, in a landscape subject, should be perfectly clear glass, unless clouds are present in the negative. Any deposit or stain on the high lights will destroy much of its beauty as a picture for the lantern. In making positives to be exhibited with the lime light or magnesium light, it will be found of advantage to make the picture of decided contrast in light and shade; for the brilliancy of those illuminators is so great, that the light cuts through the positive too much, should it be wanting in strength, giving a flat picture when thrown upon the screen. With lanterns burning lights of less power, weaker transparencies can be used to advantage.

In varnishing the plate, select a good, clear varnish, well filtered The finished picture should be protected by a piece of glass of the same size, neatly pasted together on the edges with thin strips of dark muslin or paper, to exclude dust and prevent the danger of scratching. For convenience, keep the slides in a box separated by grooves. Select good glass, free from bubbles or other imperfections.

PHOTOGRAPHY FOR BEGINNERS.

BY PROFESSOR JOHN TOWLER, M.D.

V.

Intensification, continued.

MANY operators still resort to other modes of intensification not yet referred to in my previous article; for instance, with iodine, pyrogallic acid, sulphate of uranium, and ferridcyanide of potassium, etc. These methods are all reliable.

Intensification with Iodine.—Make a stock-solution of iodine in alcohol of the following strength:

Iodine, ...	48 grains.
Alcohol, ...	1 ounce.

This solution can be labelled "Tincture of Iodine."

Pour a drop or two of the tincture of iodine into a couple of drachms of rain-water, and shake the mixture well. If the negative is still wet, pour the dilute iodine solution over the film, and keep it in motion. It is an excellent plan to intensify by this method, when the sun can shine upon the negative, for then the action is more rapid and effectual. The solution gradually parts with the iodine, which combines with the silver in the film of the picture, and forms iodide of silver; this reaction communicates to the film a rosy hue, which is somewhat of itself non-actinic, whilst, at the same time, the deposit increases in thickness. As soon as the solution is quite bleached, you may add a drop or two more of the iodine solution, and proceed as before, until the intensity is satisfactory. The plate is then washed, for it is supposed to have been previously fixed, before you apply the iodine. This intensified plate may undergo further intensification and a change of color, by now applying pyrogallic acid to the wet film.

Make stock-solutions as follows:

Pyrogallic Acid, . .	18 grains.
Acetic Acid, . . .	1 ounce.
Nitrate of Silver, . .	30 grains.
Water, ...	1 ounce.

For present use, take ½ a drachm of the stock-solution of pyrogallic acid, 4 drachms of water, and 2 drops of the silver solution. Mix intimately by shaking, and then pour it upon the film, moving it about all the while, from side to side and from corner to corner, so as to cover the whole surface. The shades now soon change their hue from the rosy tinge to a much more agreeable one to look at. As a general thing, any amount of intensification can thus be obtained. Finally, wash and dry.

But the same solutions of acid, pyrogallic acid, and silver, can be used as an intensifier, without the previous application of iodine; and iodine, too, may be dissolved in an alkaline iodide, instead of being diffused through water. Some prefer this method of obtaining a solution of iodine. In this case, the following solution is kept in stock, and labelled "Solution of Iodine in Iodide of Potassium:"

Iodide of Potassium, .	1 drachm.
Distilled Water, . .	1 ounce.
Iodine, ...	1 drachm.

A drop or two of this solution is used instead of the tincture above given. Again, the two following stock-solutions of iodide of silver in iodide of potassium, and of iodide of mercury in iodide of potassium, are excellent intensifiers, especially when combined or continued with the acid pyrogallic acid.

Iodide of silver is prepared as follows: Dissolve 1 drachm of nitrate of silver in 4 drachms of water; to this solution add gradually a solution of iodide of potassium, until all the silver is precipitated as the yellow iodide of silver. To ascertain when this is the case, let the yellow precipitate settle, and pour off the supernatant liquid. Now add to the latter a drop or two of the solution of iodide of potassium; if a yellow precipitate is again precipitated, it is a sign that the silver is not all out of the solution. Supposing, however, that no precipitate is produced, we cannot conclude from this test that there is no more silver in the solution. Two tests are required to prove this fact: one has already been made; now comes the second: add to the decanted solution, on which the first experiment or test has been made, 1 or 2 drops of nitric acid; if this produces a precipitate of a yellowish-white color, it shows that there is still some silver in the solution, and that you had added too much of the solution of iodide of potassium, which, when added in excess, dissolves iodide of silver. Therefore, drop in carefully nitric acid, drop by drop, until no more precipitate is produced. Finally, pour off the liquid portion and wash the precipitates in many changes of water. The resulting substance is the yellow iodide of silver, which may be kept moist in a bottle, and labelled.

A precipitate of the beautiful scarlet-colored iodide of mercury is prepared precisely in the same manner, only that here you substitute nitrate of mercury for nitrate of silver. The tests are also the same, in order to ascertain whether all the mercury has been extracted from the solution. This precipitate, in like manner, may be preserved in a moist condition, and labelled "Iodide of Mercury."

The solutions required for intensifying a negative or positive picture, are prepared from the preceding precipitates in the following manner:

Prepare, in the first place, 2 ounces of a saturated solution of iodide of potassium; that is, take 2 ounces of distilled or rain water, and add to the water as much iodide of potassium as it will dissolve, after shaking the solution repeatedly. Now place respectively a drachm of iodide of silver and of iodide of mercury in two vials, and pour upon each 2 drachms of the saturated solution of iodide of potassium. This solution will in either vial dissolve a portion of the contained precipitate. Shake the mixtures well, and then allow the residual precipitates to settle. Should it, however, happen that all the yellow and scarlet substances are totally dissolved, add more of these latter substances, until a portion in either vial remains undissolved. Decant the liquid portions into separate vials, and label them respectively: "Solution of Iodide of Silver," and "Solution of Iodide of Mercury." Both of these solutions contain silver in such a condition as to be easily precipitated or deposited on the silver picture, either on a negative or positive, and in this manner the shades of the pictures are thickened, and consequently intensified. The respective colors, too, being non-actinic, render the intensification quite effective. Still, a more pleasing negative is produced in either case by treating the well-washed and intensified film with the acid pyrogallic acid as above recommended.

If the negative is nearly dense enough, it is not at all necessary to apply either iodide of silver, or of mercury, or iodine alone so as to first thicken the deposit which forms the shades, but simply to treat the wet film with the acid pyrogallic acid containing a drop or two of nitrate of silver, which latter supplies the material to be deposited, whilst the pyrogallic acid, acting upon the new deposit, forms a new organic salt of silver on the shades of the picture already formed. If you follow this mode of intensification, you must be particularly careful to wash the plate thoroughly from all adhering cyanide of potassium which had been used in the fixing solution, otherwise you will expose yourself to a serious inconvenience by thus producing a red film even on those parts which ought to be perfectly transparent and colored.

Some operators prefer citric acid to acetic acid, which is required as an addition to the pyrogallic acid, in order to control its energetic action and to prevent fogging. The color of the resulting intensified negative is different in the two cases; and this color is the cause of the preference; with the acetic acid the color inclines to a reddish or horsechestnut hue; whilst with the citric acid it is more inclined to a grayish blue. In many cases, where not much intensification has been needed, the difference in color is very slight.

Intensification with a Uranium Salt and Ferridcyanide of Potassium.—This with some is rather a favorite mode of intensification, because it communicates a sort of brick-red color to the negative. It is certainly reliable.

Prepare the two following solutions:

No. 1.

Sulphate of Uranium, .	20 grains.
Distilled Water, . .	2 ounces.

No. 2.

Ferridcyanide of Potassium (red), ...	20 grains.
Distilled water, . . .	2 ounces.

These are the stock-solutions.

When about to intensify a negative, make the following mixture:

Water, ...	1 ounce.
No. 1, ...	1 drachm.
No. 2, ...	1 drachm.

Shake the mixture well up and pour it upon the film, and keep it in continual motion. The more dilute the solution and the slower the process of intensification, the more beautiful is the result. If the solution be too strong, the decomposition takes place in the solution itself, without the intervention of the negative in a state of physical tension, and thus gives rise to a visible deposit of red powder, which adheres very tenaciously to the negative, and thus spoils it. When this deposit begins to form, pour it immediately from the negative, and wash the latter; then pour on some fresh solution, or filter that which had been poured off, and use the filtrate. You must be careful not to intensify too far with this intensifier, as the opacity is very deceptive when you come to print with it. In order to succeed more frequently, it is perhaps advisable to make the intensifier as weak again as the mixture above given. Much depends upon your general mode of manipulation.

In case you cannot obtain the sulphate of uranium, you may use, instead of it, nitrate of uranium; or you may dissolve each ounce of nitrate of uranium in 2 ounces of boiling water, and to this mixture add one drachm by measure of sulphuric acid. Boil the mixture until all fumes of nitric acid have passed off, and then evaporate to dryness. Redissolve in distilled water and crystallize. A double salt of uranium and ammonia is obtained by neutralizing the excess of acid, after the nitric acid fumes have been driven off by boiling, and then setting aside to crystallize. The double salt, combined with the solution of the ferridcyanide, is an excellent intensifier.

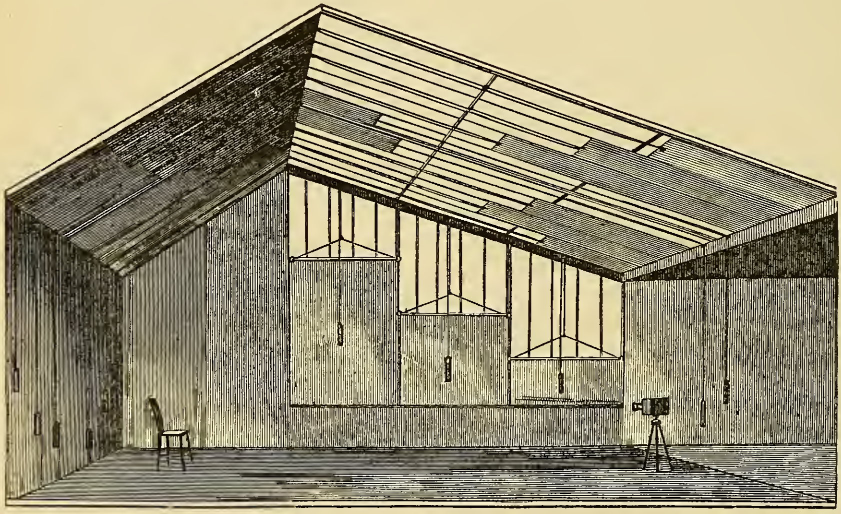
NEW AMERICAN STUDIOS.

Several new studios have been erected lately in New York and Philadelphia, and we propose to describe them herein with drawings to illustrate.

The erection of a studio is a matter that should command the very best attention of the interested. It is in the studio that the photographer makes his money, and therefore *on* the studio is where the expense should be devoted to make it perfect, rather than on a gorgeous front or a tawdry reception-room.

The *light* is everything to a good manipulator—not the quantity, but the quality—when he has the skill and good taste to manage it.

There are perhaps many studios in the country quite as fine as those we are about to describe. If there are we shall be happy to have good wood-cuts and descriptions of them for publication, for the subject of skylights is one that cannot be too fully ventilated. The few we are about to describe have been recently erected, and will therefore interest our readers. The first one is that of Messrs. Keeler, Suddards & Fennemore, No. 820 Arch St., Philadelphia.



Its construction will be plain on examination of the drawing above. The inclination of the top-light is to the north (as all lights should be when possible), and an east and west side-light. Outside of the top-light is a broad double-shutter, fastened, leaning slightly forward, to protect the top from the direct sunlight from the south.

The view shown in the drawing is from the east side, showing the arrangement of curtains at the top and west side-light. These curtains, by a proper arrangement of weights and pulleys and spring rollers, can be made to drive the light wherever required. The use of them with the proper reflecting screens are understood by every operator no doubt.

This construction of light is a very popular one in Philadelphia, and is one in which almost any effect can be secured.

The dimensions of the room are as follows:

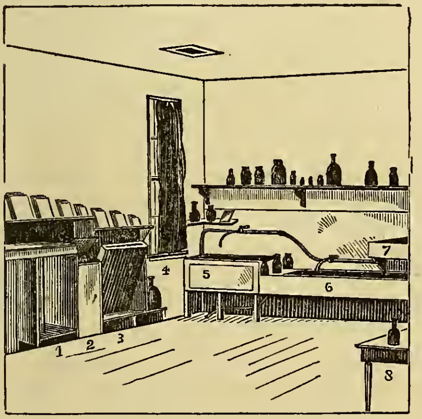
Width of top-light,	19 feet.
Length, " "	12 "
Width of side-light,	12 "
Lowest height of "	7 "
Greatest " "	12 "
Pitch of top-light,	5 "

The room being wide, is divided in the centre by a curtain, and thus two operators may work in the light at once. The glass is nicely blue-frosted. The studio is supplied with all the useful and tasteful accessories needful to produce first-class work.

A ventilator back of the sky-light is arranged so that the air in the room is always fresh. The middle part of the side-lights may also be thrown open. The management of such a studio is easy, and the cost of its erection moderate.

It is a plan which we can recommend.

Next to a good light should come a good, cleanly, convenient dark-*room*. This Mr. Fennemore has secured for himself in a way worth describing, as his is roomy, amply lighted, and well-arranged. A drawing will come in good here also. The dark-room is at the northwest corner of the studio, convenient to the operator and yet out of the way. Entering the room we find on the left, next to the door, a small closet or cupboard for chemicals; on the left hand or west side, 1, a dumb-waiter, communicating with the work-room on the ground-floor, from which glass, etc., are supplied; 2, a small closet, used for filtering apparatus for the bath; 3, is the negative bath; 4, is a window of ordinary good size, with orange glass, covered with a yellow curtain, and also furnished with a dark opaque curtain sliding on a rod, so the room may be made very dark or moderately so, at will. At the north end of the room are three tanks, viz.: 5, 30 inches square, by 12 inches deep, for developing and first washings; 6, 30 inches wide, 47 inches long, 6 inches deep, for final washing of the negatives, and 7, 20 inches x 24 inches and 3 inches deep, situated on a stand 18 inches, over No. 6, as will be seen in the drawing, used for fixing the negatives.



No. 5 is always kept half full of water, and instead of having a waste-pipe merely, has an outlet through the floor of the room, down to a barrel on the lower floor, which catches the waste solution. (This waste solution after standing over night, in order to allow the silver to subside, is then drawn off every morning.) The fixing bath, by being smaller than and over the washing tank, and eighteen inches above it, permits the negatives to be taken out, and the droppings to fall into the washing tank, thus avoiding droppings of hypo on the floor. The developing tank is supplied with one faucet, and the washing tank with two, so that two negatives can be washing all the time.

On the east side is a table (8) on which are kept collodion-pourers and other articles used in coating the plates. Over the dumb-waiter, etc., is a shelf containing the varied sizes of negative glass, etc. Over the bath a shelf for the plate-holders.

Two feet from the ceiling all around the room are shelves for varied articles not in use. Over the tanks nails are driven to hang the negatives. The closets, etc., are all painted. The floor is covered with brown oil-cloth; wiped with a damp cloth daily and never swept. The walls are papered. No superfluities are allowed in the room. Its size is 8 feet wide east to west, by 14 feet long north to south. The tanks across the end of the room occupy three feet space, and the bath, etc., 18 inches, leaving a very comfortable amount of space to work in. It is ventilated by an aperture through the ceiling and roof, and by the dumb-waiter, the mouth of which latter is level with the floor.

With this admirable studio are connected an elegant reception-room on the first-floor;

rooms for mounting, washing, dressing, etc., etc., to the number of eleven. Added to these is Mr. Fennemore's laboratory, 20 x 40 feet, where he manufactures his excellent and popular salted collodion and other chemicals. The whole establishment is a model one, and well worthy of being imitated. Mr. Fennemore is always glad to impart information, as our readers well know, and will gladly greet any who may call to see him.

Mr. Keeler is old in the trade, and Dr. Suddards, the business manager, is well known to many.

Editor's Table.

The foreign photographs, sent too late for the Exhibition, will be reviewed in our next.

Solar Printing.—We recently paid a visit to the new solar printing establishment of Mr. Albert Moore, No. 728 Wood Street, Philadelphia, where a very curious sight may be seen any clear day. Two rows (nine each), of giant instruments, with upturned faces, may be seen, silently but surely doing their work, and the busy operatives moving among them here and there continually, adjusting and fixing them properly. The sight is a novel one. Mr. Moore is continually driven with work, and his results are excellent.

Mr. Joseph Schnitzer, the eminent optician, is deceased. He has been a very useful man to the profession, and his death is to be regretted. It will not cause any confusion to the American Optical Works, however. Mr. Blunt, himself, being a thorough optician, giving his whole time to the business now.

Mr. E. L. Brand, Chicago, Ill, has recently fitted up very elegant rooms in Washington Street. We are informed that his rooms and his studio are models, and, no doubt, he intends his work shall be in keeping therewith.

Land's Co-operative Photographic Chemicals.—Mr. W. J. Land, Atlanta, Ga., is manufacturing chemicals for photographers which are calculated to work harmoniously together. He accompanies them by a very sensible circular of "Remarks," which are well worth perusal. *Perfection* is Mr. Land's aim and desire.

Mr. A. F. Clough, Orford, N. H., has sent us several pretty stereos, among which are: "Japanese Lilies," "Roses," "Clover," "Hedge Sparrow's Nest," and "Forty Miles in the Valley of the Connecticut," all very fine for the stereoscope.

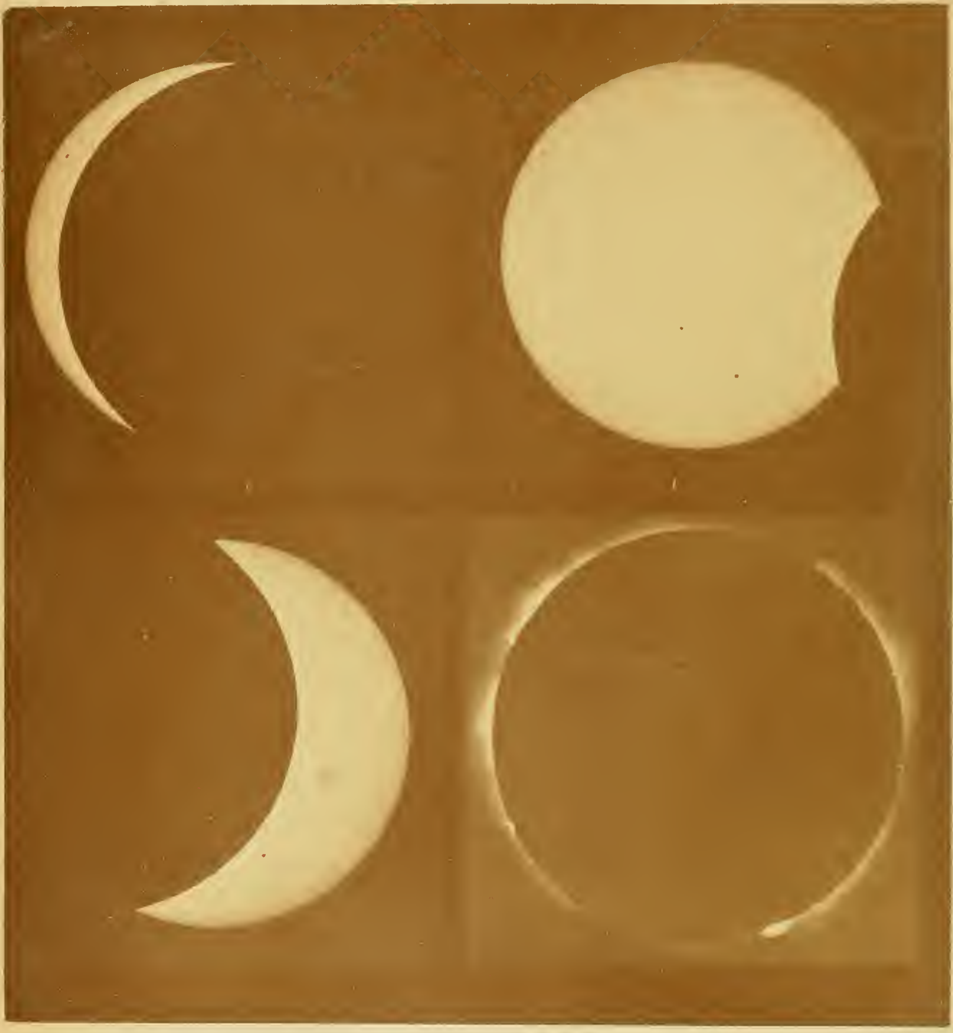
From Messrs. Kilburn Brothers, Littleton, N. H., we have several admirable views of Echo Lake, Franconia Notch, Livermore Falls, Mt. Cannon, and Profile Lake, White Mountains. These gentlemen are doing much to elevate their branch of the art, and are meeting a liberal patronage, we are very glad to see.

Thanks to Mr. I. Knowlton, Cumberland, O., for cards of an old opossum and eight young ones. Very well taken.

Thanks, also, to Mr. W. C. Thompson, Newburyport, Mass., for interesting stereos, some of which are excellent; and Messrs. D. H. Knight, Terre Haute, Ind., and F. B. Bailey, Huntsville, Texas, for examples of their work.

Mr. William Kurtz, New York, has recently occupied his new studios, corner of Eighteenth and Broadway, and has sent us a number of pictures, showing the multitude of effects he is able to secure. It seems possible for him to get any desired light upon his subject, and to work quick or slow. And his effects are not only varied, but they are charming. Mr. Kurtz is one of our most gifted artists, and, withal, is very liberal in communicating what he knows. We not only hope soon to present our readers with a specimen of his work, but a description of his studios, with drawings. Look for something original and excellent.

Views of Niagara in Winter.—We have received, from Mr. William Notman, Montreal, several 12 x 15 and 8 x 10 winter views of Niagara Falls, which assuredly supersede anything that we have seen of that great wonder of the world. The views are not only specimens of first-class manipulation, and charming as photographs, but they are selected with that good judgment which can only be obtained with an artistic eye. The large ones are the largest we have seen taken of Niagara. The cloud effects are most natural. They are accompanied by a large series of stereos, made from all favorable points on the American and Canada sides, which are not to be excelled. One can never tire of looking at views of Niagara.



VIEWS OF THE

GREAT SOLAR ECLIPSE,

1869.

Boston Public Library.

THE

Philadelphia Photographer.

Vol. VI. SEPTEMBER, 1869. No. 69.

Entered, according to Act of Congress, in the year 1869,
By BENERMAN & WILSON,
In the Clerk's office of the District Court of the United States for the Eastern District of Pennsylvania.

THE PRIZES.

The 15th of September is the time when all who desire to compete for our next prizes must have their negatives and prints in our hands, for the inspection of the judges. Remember, three prizes, each of *twenty-five dollars*, or a *gold medal* of that value, are offered for, 1. The best portrait. 2. The best landscape view. 3. The best *genre* or composition group. Two negatives of each subject and a print from each negative are required. Our purpose in this matter is to stimulate effort towards perfection in work, and to encourage generous competition.

Already some elegant pictures are received, and, during the rest of the time, we shall expect many more. Do not be afraid to try, and let us have the very best you can do. Be sure to have your results here in time. Please read over our former articles on the subject.

PHOTOGRAPHING THE ECLIPSE.

The late Solar Eclipse was an event which was heralded and predicted many years ago, but during the past year has attracted very great attention. The special attention of photographers has been called to it, as a subject of great interest for the camera, and we are glad to know that good and interesting results followed. The idea of making photographs of the great source of light himself, particularly when he was partially, or totally deprived of his power, had a charm about it which many found it impossible to overcome. Our friend Dr. Vogel, whom it will be remembered, secured the best photographs of the 1868 eclipse, awakened a desire in us to emulate him, so we joined Prof. Morton in his plans and efforts to organize a party for the purpose.

During the last Session of Congress, an appropriation of five thousand dollars was made for the expenses of photographing and observing the eclipse. This was placed in the hands of Prof. J. H. C. Coffin, head of the Nautical Almanac Office, U. S. N., who, taking charge of the Astronomical Department himself, authorized Prof. Henry Morton, Ph. D., to make up the photographic branch and take charge of the same. This Prof. Morton undertook. One would think it a small job, perhaps, but there was much to do. First, telescopes had to be obtained. This done, they had to be altered and arranged for the purpose, and that done, men to work them had to be secured—skilful men, understanding their business, and not apt to become excited—men who were willing to volunteer their time and labor for the cause of science.

All this done, the next thing was to exercise the parties in their work, which was done in this city, from time to time, as the weather would allow.

The details of his work Prof. Morton records further on.

Early on Monday morning, August 2d, the entire party started from this city in a handsome new car, fresh from the shops of the Pennsylvania Central Railroad Company, at Altoona, which, on the way out was shifted from one road to the other, until our destination was reached, and then kept until we were ready to return. For this accommodation we were indebted to the officers of the various railways over which we passed.

The day was fine, and as all know, the ride westward through our State is not excelled in this country. We halted at Baldwin, Pa., to witness the making of steel by the Bessemer process; dined in our car (a-la-car-te?) and halted at Cresson for our supper. Leaving Cresson, we prepared our sleeping apartments for the night. Sleeping was not very numerous. Some who *could* not sleep, seemed determined that those who could, *should* not.

After breakfast, at Alliance, the rest of the day was endured through the fields of Ohio, Indiana, and Illinois, until we reached Chiçago. We remained there a few hours, then proceeded on our journey, reaching Burlington, Iowa, next day about noon. Here our party was divided into three, so that the chances of being defeated in our plans by the clouds, might be lessened, and sent to different stations as follows:

With the High School telescope, 6 inch aperture, 9 feet focal length, Prof. A. M. Mayer, Ph.D., and Mr. O. H. Kendall, in charge of the adjustment of the instrument and management of the apparatus for exposures, and Messrs. O. H. Willard, H. C. Phillips, and J. Mahoney, having charge of the entire photographic work. This party was stationed at Burlington.

With the Gettysburg telescope, 6 inch aperture, 8½ feet local length, Prof. C. F. Himes, Mr. J. Zentmayer, and Mr. E. Moelling, in charge of the instrument, etc., and Mr. J. C. Browne, and Mr. W. J. Baker, who managed all the photographic processes. This party was stationed at Ottumwa, about 75 miles nearly west of Burlington.

With the University telescope, were Prof. Morton and ourselves, in charge of the instrument, and Messrs. H. M. Clifford, James Cremer, and W. V. Ranger, as photographers. We were also joined by Mr. John Carbutt, of Chicago, as a volunteer, who gave us most efficient aid in our manipulations.

Mount Pleasant being where our section was to be stationed, we proceeded there at once. Soon after our arrival we were waited upon by Prof. Mansfield, and Hon. Judge Vale, who offered us the hospitalities of the citizens. In the evening we were joined by an Astronomical party, consisting of Profs. Watson and Meriman, of the University of Michigan, and Prof. Van Vleck and Mr. Wm. Johnson, of the Wesleyan College, Middletown, Connecticut. Prof. Edward C. Pickering, of the Massachusetts Institute of Technology, Boston, also accompanied us, and made physical observations.

It was agreed by all the parties, that the County Fair Grounds would be the best location from which to make our observations, and upon application to his honor Mayor Strawn, we were granted the privilege of using the grounds for our purpose. The erection of a proper dark-room was our next care, and in doing this we were also aided by Mayor Strawn.

Our chemicals and apparatus were then opened and everything found in perfect working order. All we wanted then was sunshine. Our first night at Mount Pleasant was attended by a terrific thunder shower, the lightning striking near by several times. This led some of the more ignorant and superstitious citizens to look upon us with suspicion. One old man, commenting upon the weather, the second day we were there, declared that we had no business there inquiring into the works of the Almighty, and He would make it rain to disappoint us. It looked very much as if his prediction was going to be true, up to the time of our retiring on Friday evening, and our faith began to weaken. It was somewhat strengthened, however, by the following conversation which took place between a couple in the sitting-room of the hotel.

Charlie.—"Jim, *do* you think it will be cloudy to-morrow to spoil the Eclipse?"

Jim.—"*No*, sir! Depend upon it them fellers (alluding to us), know. They say it will be clear, and they wouldn't travel 1500 miles to see the eclipse unless they *knew* it was going to be clear."

Up to midnight (and we know not how much later), on Friday, the heavens were clouded and a chilly northeaster blowing. We kept up our hopes, however, and to some effect, for on Saturday we were favored with an entire day more clear and perfect than any we had seen at home for months. The sky was cloudless and the sun so bright and warm that it was an easy matter to wonder how it ever *could* be eclipsed. With light hearts we proceeded early to our scene of action. Our chemicals were again tested *time* and again, and everything found in as perfect order as when they left Philadelphia. Our parts were rehearsed again and again, and each one felt that if the sun *continued* to shine we should have all the success desired. We were placed in doubt again when we went to the hotel to partake of the last meal we ever expected to eat—before the eclipse,—when we again heard from our old prophetic friend, who upon being asked, "What do you think of the weather now?" said, "Ah! God is only showing them fellers what he can do. They will git it cloudy enough before 4 o'clock." But we didn't. A perfectly clear sky continued. After dining we again visited the scene of action, and a busy scene it was as well as an interesting one. The astronomers had their telescopes in position and ours stood ready for the work. We had to build a fence around it to keep off unofficial observers. In order to test our baths, etc., once more, several stereoscopic groups of the astronomers and photographers were made. All was right, and the hour was near at hand when it was predicted that the moon and sun should begin their struggle for the mastery. Messrs. Clifford and Ranger coated and sensitized the plates; Mr. Carbutt developed; Mr. Cremer received the plates from, and passed them into, the dark-room; Professor Morton managed the telescope, and we made the exposures, each man standing at his post for over two hours working almost continually. Our dark-room was large and arranged to suit us. Two holes were cut in one side, one to pass the plates out and the other to pass them in again after exposure. The telescope was about five feet from the dark-room, so that exposures could be quickly made whenever required. The instantaneous drop used was a little marvel of ingenuity, constructed by Mr. Joseph Zentmayer, and fully described by Professor Morton in his paper. The chemicals used were after the ordinary formulæ often repeated in our pages, and commonly used in the galleries of our best manipulators. As we have said, they were all prepared in Philadelphia before our departure.

We were now told by the astronomers that the moon would soon reach the sun. Plates were prepared at once ready to get a picture of first contact. Prof. Watson was to signal us by lifting his hand at the moment. Our plate was in the camera and the slide drawn, while we watched for the signal Up went the hand; click! went the stop, and the first exposure was made, the plate showing on development the least contact, looking like the impression made upon an apple by the thumb when testing its ripeness. Negatives were then made at intervals of five to ten minutes until totality took place, and after totality until the eclipse was ended and over.

"Totality will occur in 6 minutes," cried Prof. Watson, as agreed. "Totality will occur in 6 minutes," we re-echoed to our co-laborers in the dark-room, and soon after the plates began to appear. Totality came, lasted 2 minutes and 48 seconds, and four exposures were made. There being plenty of men to work their parts all things worked smoothly and well, and our expedition was a grand success!

Three of our party, however, were martyred to science, and these were the men in the dark-room. More persons living in the United States have seen Niagara or the Mammoth Cave or the Yo-semite Valley than have seen a total eclipse, and it will be A.D. 1901 before another can be seen, yet these men stuck to their work like heroes and saw nothing of the totality.

And now, how shall we convey to our readers an idea of what a total eclipse is like? We were continually interrupted making exposures, yet between them we witnessed—a grand, an awe-inspiring sight, which we shall never forget. How shall we describe it?

In the year 1842 there was a total eclipse of the sun visible in the south of France. Arago tells us that at Perpignan nearly 20,000 persons, smoked glass in hand, stood ready to witness it, and shouted aloud when it came. Had we the descriptive power of those 20,000 we could not describe our impressions during totality. We had read many descriptions of a total eclipse; had studied up the matter with phototographic views of one; thought we knew just what to expect and how it would look. Our information on the subject only added to our surprise.

Our position enabled us to watch the progress of the eclipse nicely. About a quarter of an hour after contact the diminution in the light began to be quite perceptible, and near totality the air became so much cooler that having a linen coat on we wished for a warmer one. The air seemed as it does when a storm is gathering overhead. A bank of clouds in the south, which were not visible when the sun was shining fully, now began to assume color—first a silvery glare, then gray, then yellowish, and finally a bright orange-red color. The blue of the sky changed into various colors too, and our companion's faces began to assume rather a livid appearance. The changes were very gradual. With our mind upon our work, anxious lest we should fail, we had less opportunity to watch the phenomena than we desired, but what we saw we remembered. Totality took place. It was dark, but not the darkness of night. These pages could hardly be read at the time. We have seen moonlight nights brighter than it was then. We could all readily see to do our work. As we had chances to lift our eyes upward oh what a sight met them! A moment before and the narrowest rim of the sun was shining so brightly the eye could not gaze upon it without pain. Now, the struggle is over for the moment; the moon has gained the mastery and the sun is eclipsed! The light had passed away instantly, like the flames of a great fire sometimes do when with one grand leap upward they fall suddenly, mastered by the water thrown upon them—like the snuffing of a candle in a dark room.

There, hung in the heavens, aye, between heaven and earth, upheld by the hand of God, were the two great orbs face to face. A great round shadow; all around it a brilliant circle of light, of a brownish golden color, broken here and there at irregular intervals by the brighter pink protuberances of irregular size and shape, crowned by the glorious corona, glorious and bright, shooting its sheafs of rays in all directions, weakest where the protuberances were largest, but all-inspiriting, awe-inspiring, wonderful, glorious, making one feel that our Creator must be near at hand to bring about such a display of his wondrous and Almighty Power. Silence reigned. Nought could be heard but the counts of the astronomers, and the click of our drop as each plate was exposed. There it hung, a great picture displayed by the Almighty to his creatures. Oh! what a sight! We looked overhead once, and our eyes met several stars which seemed to rebuke us for looking at them. The same feeling of reproof came over us as the great protuberance on the lower edge of the sun was looked at time and again. Four plates had now been exposed; and now, as we looked, "God said let there be light, and there *was* light," for then came a bright dazzling flash of light, triumphant, like the victor of some great conquest; like the leaping of the waters as they reach the falls at Niagara; like the joy that broke upon the heart of the aggrieved father at the sight of the returned prodigal; like the scene that followed when our Saviour said, "Lazarus, come forth!" The battle was decided, and the sun the victor. The people who had crowded around hailed the victor with shouts of triumph loud and long. The shadow moved rapidly on as if chagrined, and the light began to grow brighter and brighter. The mighty god of the day had only been mastered for a moment, as it were, to come out more brightly, warmly, and genially, to scatter his blessed light upon us.

Ah! how little can what we have written give you an idea of the glory of that phenomenon.

From the negatives that were taken, we have made positives, and from these negatives, from which we present our readers with four pictures, all the size of the image on the originals. The first, on the right upper side, was the sixth or seventh one taken after first contact, being more striking than those taken previously. The sun-spots are plainly visible. The lines running across all but the one made during totality are the spider-lines. These were for determining the angles of position, one being parallel to the earth's equator, and the other perpendicular to it, and were not, of course, a part of the sun. The next picture to the left was taken a few moments before totality, showing the progress of the moon. It also shows the principal sun-spot. The next picture is one taken during totality. The exposure being made short in order to secure the most of the protuberances (for remember the moon was moving all the time), the corona is scarcely visible. A very good idea of the shape and number of the protuberances may be had from this, though there is, of course, much detail which the process of double copying and silver printing causes to be lost. One, it will be seen, assumes a sort of cross-shape, and is very singular. The one on the lower edge seemed to us the brightest and largest. An entire circle is got in this. The last picture was made just a short time before the eclipse ended, and, of course, nearly three-quarters of an hour *after* totality. See sun-spot.

We think we are safe in saying that no photographs of the sun were ever made so good previous to this eclipse. It was very interesting, doubtless, to those who developed, to watch the constantly varying image upon the plates.

After the eclipse had ended, and the sun was shining again brightly and gloriously, we busied ourselves making stereoscopic groups of the astronomers and our party. The satisfaction that characterized each face was very discernible. We had travelled far from our homes to witness the great phenomenon. It had taken place, as predicted, to the very moment. We had photographed it all we could, and our hearts were content. We were happy and satisfied. Our efforts resulted in success, and we began to pack up for home We were indebted to Messrs. Hover & Bro., and to Messrs. Leisenring Bros., photographers, of Mt. Pleasant, for several kind attentions, and to a number of the pleasant citizens for many more, the remembrances of which shall always be pleasurably connected with the occasion. Effort was made by them to make our stay among them pleasant. The city is a delightful one, and we left it feeling that it was truly a mount of pleasantness. We wished that we might have stayed there longer to enjoy the social pleasures offered us.

On Tuesday, at 4 A.M., our Ottumwa branch called for us, and then began the comparing of notes. They had had a rougher time than our party, having a larger telescope, and finding it somewhat deranged by transportation. Mr. Zentmayer was fortunately with them, and soon had all things right. They were eminently successful, obtaining about forty negatives, and four during totality. This was charming. A few miles further on, and we took up the Burlington branch, thus bringing our party all together again. Notes were again compared. They, too, were up to the rest in their successes, having nearly forty negatives, and five during totality. Long stories of incidents and bits of misfortune, good fortune and adventure, were now rehearsed as we travelled through the delightful country, until we reached Chicago, at 3½ P.M. We first paid our compliments to our valuable co-worker, Mr. Carbutt, who piloted us around the city for a day,—wonderful Chicago,—after which we left for Philadelphia. On the way home, a half-day was spent in Pittsburgh among its novelties, and a few hours at Altoona, where we were met by the genial Superintendent of the Pennsylvania Railroad Company, Dr. Edward H. Williams, and pleasantly entertained.

At Pittsburgh the following Resolution was offered and unanimously carried:

Pittsburgh, August 12th, 1869.

The undersigned, composing the party which was organized and placed under the direction of Professor Henry Morton, for the purpose of observing the total eclipse of the sun, on the seventh of the present month, in the State of Iowa, cannot separate, after the successful accomplishment of their object, without returning their sincere thanks to Professor Morton for his constant and successful endeavors to promote their pleasure and comfort. They would also embrace the opportunity to express their admiration of one who combines the profound scholar and the accomplished gentleman, and to give utterance to the earnest wish, that the remaining years of his life may be as successful and happy as the past have been honorable and useful.

James McClune,
Alfred M. Mayer,
Edward C. Pickering,
Charles F. Himes,
W. J. Baker,
Henry C. Phillips,
H. M. Clifford,
James Cremer,
Otis H. Kendall,
E. Moelling,
John C. Browne,
W. V. Ranger,
Joseph Zentmayer,
Sam'l G. Gummere,
O. H. Willard,
Jerry Mahony,
Edward L. Wilson.

We must add to this that no more fit selection could have been made by Professor Coffin to engineer the Photographic Corps than Professor Morton. His constant care was towards the comfort of his charge, and he succeeded admirably.

At Burlington we were met by Professor Coffin, who gave Professor Morton the following letter:

Burlington, Iowa, Aug. 9th, 1869.

My dear Sir:

In separating from the parties organized by you for photographing the solar eclipse August 7th, I desire to express my full appreciation of the valuable services they have rendered and the abundant success of their labors. The earnestness and zeal with which each one performed his allotted work, the harmony which prevailed throughout, the self-denial which shut them out from the view of a grand and glorious scene, witnessed but rarely more than once in a lifetime, and the excellence of their work, have all been peculiarly gratifying.

Please present my thanks to each one, and my cordial good wishes for equal success in the future. I am, with sincere regard,

Your obedient servant,
J. H. C. Coffin,
Professor of Mathematics, U. S. N.

This was of course very gratifying to us all. We arrived at Philadelphia early Friday morning, separated for our homes, and thus ended the great Eclipse Expedition of 1869.

Besides the expedition that started from Philadelphia, there were several other parties organized to photograph the eclipse, all of whom met with considerable success.

Dr. Edward Curtis, of the War Department, with his assistants, was stationed at Des Moines, Iowa. We have received a full report from him since this writing, which will be found further on.

Mr. W. C. Taylor, of the firm of Wenderoth, Taylor & Browne, Philadelphia, was at Fort Dakotah, D. T., with Prof. Abbe, director of the Cincinnati Observatory. Several negatives were taken by Mr. Taylor during the various phases, but none of totality.

Prof. Davidson, U. S. N., was at Alaska with a party of photographers, but we have no report from them as yet. We shall be interested in hearing from them.

At Springfield, Ill., Mr. J. W. Black, of Boston, was stationed, assisted by Messrs. W. P. Montague, R. A. McLeod, C. R. Fay, and T. E. Sexton. One hundred negatives were made during the progress of the eclipse, each one being recorded by the chronograph. One negative was secured perfectly, during totality. We hope to hear further from Mr. Black's party.

At Shelbyville, Kentucky, Mr. J. A. Whipple and assistants were stationed. We append a short report of their doings, from Mr. Whipple:

"The telescope we used was made by Messrs. Alvin Clark & Sons, Cambridge, Mass., 6 inches in diameter and $7\frac{1}{2}$ feet focal length, driven by a fine spring governor clock, giving an image of about $\frac{3}{4}$ of an inch in diameter. A box was attached to the end of the telescope for holding the photographic plate, which was $4\frac{1}{4}$ by $5\frac{1}{2}$ inches, arranged for two impressions on each plate. The shut-off, a slide in front of the plate, was held up with a key, which, when touched, would let the slide drop past the plate, and a little slot, about $\frac{3}{16}$ths inch wide across the slide, would expose the image of the sun upon the plate the instant of crossing, and at the same time break an electrical connection, and make a record of the time it was taken on or with the chronograph (which was a very important part of the arrangement). I went at the request of Prof. Joseph Winlock, of Harvard University. Mr. Dean, of the Coast Survey, with numerous assistants, had charge of the general arrangements. Prof. Winlock and Mr. Alvin G. Clark worked the large Shelbyville telescope, with the spectroscope. Mr. George Clark operated the mechanical parts of the photographic telescope. Our Mr. J. Pendegrast coated the plates. Mr. Williams, photographer, of Shelbyville, developed. We made eighty impressions in all, and six during the totality. The best one of the corona had an exposure of 40 seconds with the full aperture of the telescope, others 10 and 5 and 15 seconds. Before it was total, time ranged from $\frac{1}{10}$ to $\frac{1}{2}$ second, I should say, with $1\frac{1}{2}$ inch opening or diaphragm in the telescope.

"The day was splendid, not a cloud to be seen. The first effect noticed was a diminution of light, as if the sun was clouded, but upon looking up it was perfectly clear; then a chilliness involuntarily bursting up, then that ashy pallor, then the light shut out in an instant as it were, having a frightful effect, and then that awful gloom, wonderful corona, and joy when it appeared again. Messrs. Dean and Winlock, I suppose, will use the negatives in connection with recorded chronograph time in their researches.

"Yours truly,
"John A. Whipple."

The next party of whom we have record were stationed at Davenport, Iowa, Mr. P. B. Jones, of that city being assisted by Messrs. W. E. Bowman, of Ottawa, Illinois, Gayford and Newberry, of Rock Island, and R. M. Cressy.

Mr. Jones has kindly sent us some notes of their proceedings, which we condense as follows:

"The instruments we used on this occasion were made by Prof. Thomas Leighton, of Rock Island, and were twin telescopic cameras, one for general observation and direction, and the other for photographic purposes. The equatorial stand was also an original invention of Prof. Leighton, weighing four hundred and eighty pounds. Upon this the cameras were made to follow the sun in any part of his orbit, without jar and trouble, although no clockwork was employed.

"All the lenses used were of his own manufacture, being corrected also by him, as he is an optician as well as astronomer, whose excellence is only equalled by his unassuming modesty. Indeed, to Prof. Leighton I feel mainly indebted for the success I have had.

"The labors performed were for the Davenport Academy of Natural Sciences, and under their auspices.

"The Photographic corps proper, consisted of eight members, including Prof. Leighton, manager of the instrument.

"The time of exposure, with an aperture of five-eighths of an inch, was one-hundredth part of a second.

"The size of the image is the largest ever made, being something over four inches in diameter, on a four-four glass.

"Negatives were made at intervals of two and a half minutes.

"Forty-two impressions were made, yielding thirty-eight good negatives.

"Two of those which were lost were of the totality, but one imperfect negative of that phase being obtained.

"The duration of totality at this point was sixty-three seconds. During the major portion of this time, Prof. Leighton was unable to perceive the slightest image in the camera. It is the experience of other parties, who were in the region of longer totality, that but inferior impressions can be obtained of that spectacle, it being impossible to transfer its crowning glories to the plate. As the sun diminished to a thin crescent, the phenomena known as 'Bailey's Beads,' became distinctly visible in the camera.

"The *pressure* will not allow me to consume more of my time or your space at present, but I shall very soon send you the whole formula I used on that occasion, and hold myself ready to answer any questions with regard to it, your readers may be interested in asking.

"Yours as ever,
"P. B. JONES."

The Canadian party of observation consisted of Com. Ashe, R. N., of the Quebec Observatory, and Mr. James Douglas, of Quebec. They were joined by Mr. A. P. Falconer, of London, and Mr. H. D. Vail, of Philadelphia, Pa. They were requested to locate themselves at Jefferson City, Greene County, Iowa, by Prof. Alexander. Their instruments consisted of an 8-inch telescope by Alvin Clark, of 9 feet focal length, fitted for photography, and a 42-inch focus telescope by Dolland, through which Mr. Vail observed the times of contact and the general phenomena of the eclipse.

The large instrument was provided with movable cameras, one suitable for enlarged pictures of the partial eclipse, the other for taking pictures during totality in the principal focus. Com. Ashe exposed the plates, and Mr. Douglas did the photographic work.

The weather there, as elsewhere, was stormy for two days previous, and during the morning of Saturday (the 7th) the sun was only occasionally visible. Towards midday, however, the clouds cleared away, but the sky remained hazy. Only for about half an hour before and after the eclipse could a clear photographic image be obtained, and before the eclipse was over the sun had sank behind a bank of clouds, which so completely destroyed the actinic power of the light that not the faintest impression could be brought out from an exposed plate.

Several flash pictures of the partial eclipse were taken before and after totality, enlarged to 3½ inches; and during totality four pictures were taken of one inch diameter in the principal focus. The exposure was in all cases ten seconds. It was not sufficiently long to bring out fully the corona all round the disk, but the protuberances are well marked, and the successive appearance and disappearance of those on the preceding and following limbs of the sun, as well as the gradual growth and decrease in size of the large hooked flame in the lower limb, are well shown.

There were, doubtless, other parties of whom we have not yet heard. All of those recorded above were in the line of totality, the negatives during that phase being the most precious.

Two and three minutes we found a very short time to make four or five exposures, and at the same time witness what we shall probably never again behold.

We shall not forget it soon. Neither shall we forget the pleasures we have had with our co-workers, and the courteous people whom we had the pleasure to meet.

The partial phases were photographed all over the country, many proofs of which are before us from our subscribers. It will be a long time before our best friend, the sun, will allow us another chance at him, while he is laboring under like disadvantages.

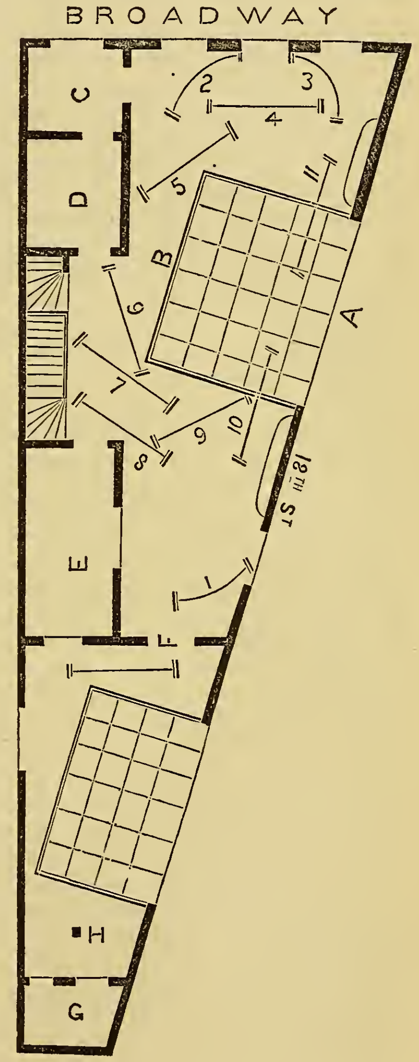
NEW AMERICAN STUDIOS.

To continue this subject, we this month take pleasure in giving a few notes concerning the new studio, recently planned and erected by Mr. William Kurtz, 872 Broadway, New York. Mr. Kurtz, as we have before stated, is one of our best and most talented artists. His profession has been that of an artist always, and such men generally make the best photographers. No one can visit his elegant rooms and see the appurtenances there without being impressed with the originality and genius of the man who planned them. And not only is Mr. Kurtz an accomplished artist, making work and getting effects that *all* would do well to emulate, but *he has no secrets.* He is willing to communicate all he knows to others, and, although he knows much, he is ever willing to receive instruction from others. He is, therefore, according to our ideas, as near being a *model* photographer as any one we can refer to, and we are glad to know that success attends him. He deserves it.

We have at hand about two dozen portraits made by Mr. Kurtz. What is singular, no two are treated exactly alike. There is *method* and *invention* in each one, yet they strangely vary, showing that in his new studio he can get any effect he likes, or any effect of lighting desired.

We will now proceed to describe his studio. Our readers will bear in mind that Mr. Kurtz first leased his building and then made the best he could of the space he had. Instead of giving a profile or interior view of his studio, etc., therefore, we think the matter will be better understood by a plan drawing as below. The location is at the southeast corner of Broadway and 18th Street. There is a fine wide entrance on Broadway, decorated with elegant specimens, and a stairway leading to the second floor. In the second story are the reception and dressing rooms, office, studios for artists, stock-room, etc., etc., all convenient and admirably arranged. The third floor is devoted to the studios, and with the annexed drawings we give Mr. Kurtz's arrangement thereof, and his method of working.

By referring to the plan it will be seen he has a front view on Broadway of about 50 feet, with four windows, by 80 feet on 18th Street. The main light, A, is 14 feet long (situated between two chimneys, consequently he had no alternative as to the length), and 14 feet wide, with an angle of 30°. The side light being 14 feet x 10 feet, glazed with double thick Belgian white glass. The side light contains 8 light iron frames covered with white muslin, running up from the floor, capable of being all opened together or separately, in either direction, thus performing the double duty of screen and reflector. The top-light is furnished with two screens on rollers, with springs, the screens running in the direction A to B; the room C is the chemical department or laboratory, wherein, of course, are compounded all the preparations used; immediately adjoining is the developing or dark-room, D; opposite, at the head of the stairs, is the ladies' dressing-room, E; through the door F we pass into the children's sky-light, which is about 40 feet long by 20 feet wide in the widest part; at the smaller end is the dark-room, G. The size and shape of this room Mr. Kurtz was compelled to make exactly as it is, as it is built on the roof of the adjoining portion of the building. The light is 14 x 10 feet, cloth top and side, and it works exceedingly quick, 2 to 3 seconds' exposure on fine days, to 6 seconds on cloudy days. In here are the pictorial backgrounds, rocks, shrubberies, and solid accessories of the rural kind. The camera being placed at H, generally remains on one spot. In the main light the screens are placed as seen by the numbers 1 to 11. The side-light effects are produced by screens 1, 2, 3, which are peculiarly arranged by open windows, and are constructed to relieve the dark parts of the sitter on



a light background, and the lighter parts of the sitter on a darker background.

Pictures are taken all over the room, and rarely are taken from the same spot twice, all of course depending upon the light, kind of subject, and the side to be taken. The screens marked 10 and 11 are those used for the "Rembrandts," whereby it will be seen the sitter is placed back to the light, and by the reflector, presently to be described, the shadows are brought out.

The reflector is a screen on rollers, with two doors or wings, capable of opening and shutting entirely round from either side, both sides being used. At the bottom of each door is an adjusting-bolt, to retain the door in any desired position. One side of this reflector is covered with tin-foil, being more powerful than the other side, which is perfectly white.

The developing-room is lighted with orange glass, and the light has first to go through the chemical room.

Although this studio is of peculiar construction, its main features and advantages may be easily adopted by others. Mr. Kurtz has certainly made everything possible available in his rooms. At background 1, many of his most pleasing effects are secured. There is no direct top-light there, but the light secured from the main top-light with the small window at the (north) side enables him to get brilliant effects of a most pleasing nature. A chapter could be written upon the backgrounds, etc., used by Mr. Kurtz, but as he promises us a chapter on that subject himself, at some future day, together with a specimen of his work, for our Journal, we will not discuss them now. There is one "dodge," however, that we will explain. In the studio we saw a small platform on wheels, with handles like a barrow and a chair thereon. We naturally inquired what it was for? Mr. Kurtz answered: "When in the dark-room preparing plates, I often see my subjects assume very graceful positions, which it seems almost impossible to get myself when I go to pose them. Therefore when they come in I seat them on this platform and watch them from the dark-room. When they assume a pose I like, I step out, ask them to keep it, and I wheel them under the light where I want them." This is a capital plan and works admirably.

THE SLIDING PLATE-HOLDER PATENT.

IMPORTANT DECISION.

Our readers are doubtless all familiar with this patent, as it has been discussed in our pages from time to time, and many have been called upon by the patentees to "settle" for their presumptuous claims. It has not been made quite as offensive as the late Bromide Patent, yet every photographer who made more than one image on the same plate was subject to the insinuations of the patentee or his agents. His patent, as we have always held, was worth absolutely nothing. Before he even conceived the idea (according to his own testimony) of multiplying the image without changing the plate, many others were using it publicly and continually. What, then, gave him the right to levy tribute upon the profession for what they had a perfect right to use? Nothing but the assumption of the patentee and his agents. No one photographer seemed willing to fight the pretentious claims alone, and from year to year the thing was feebly pushed here and there until about the time the patent expired. Application was made for its extension some months before the original patent expired, and during the time when the fraternity were busy fighting the Bromide Patent. Photographers being thus busied, the sliding plate-holder people pushed their case to a hearing uninterrupted, and made desperate effort to get the then acting Commissioner of Patents to give his decision in the case. The Examiner had made his report, stating that as no opposition had been made to the extension, and as he could find no printed record of previous discovery, etc., etc., he would recommend the extension of the patent. All looked serene for them sure; but, ah! a change was made in the commissionership just then, and, as we have before stated herein, the new incumbent very properly reserved his decision until the expiration of the patent, when he granted the extension. We were not dismayed, however. The extension was granted without one line of testimony being taken for the public, and we felt that the craft would yet be spared the infliction of such pretentious and illicit claims.

Some time before the patent expired, Mr. Simon Wing, of Boston, owner of a portion of the patent, sued Mr. C. C. Schoonmaker, of Troy, New York, for infringement. Mr. Schoonmaker, having more pluck than the most of the craft, stood the suit. He changed his business meanwhile, but did not give up the battle. He persistently, and almost or quite alone, pushed the matter, gathered testimony, employed counsel, and met the issue bravely in court. The testimony taken was voluminous, but for the defendant and the profession most satisfactory and promising. The case was argued last March, we think, before Judge Nelson, at Albany, Mr E. Cowen for the patentees, and H. Baldwin, Jr., Esq., of Philadelphia, for Mr. Schoonmaker. The case was then closed, and since then we have been awaiting the decision of his Honor Judge Nelson. The patentee had obtained his extension, and was mapping out his plans for future imposition. The whole trade was to be scathed, and every gallery closed, that would not listen to his claims (which were broadened and widened), *if* Judge Nelson decided in his favor. But, thanks to Judge Nelson, the tables are turned. The case has been decided in favor of Mr. Schoonmaker, and the fraternity need fear no further molestation from the owners of the so-called Sliding-Holder Patent. This is a matter quite as joyful as the defeat of the Bromide Patent. True, many have so far had no claim made upon them for the use of what is their common right, but they *would* have been so called upon had not the decision been as it is. We append Judge Nelson's decision below, as follows:

"The bill is filed in this case founded on a patent to A. S. Southworth, April 10th, 1855, for a new and useful Plate-holder for Cameras, and reissued September 25th, 1860.

"The claim in the reissued patent is bringing the different portions of a single plate or several plates successively into the field of the lens of the camera, substantially in the manner and for the purpose specified.

"The patentee states in his specification that it had been customary to use a separate plate for each impression, the plate being removed from the camera and replaced by another when several impressions of the same object were to be taken, as in multiplying copies. This caused delay and trouble, to obviate which was the object of this invention, and which consisted in bringing successively different portions of the same plate, or several smaller plates secured in one plate-holder, into the field of the lens of the camera, and in carrying out the invention the patentee has made use of a peculiarly arranged frame, in which the plate-holder is permitted to slide, and in which the position of the plate-holder is definitely indicated to the operator, etc.

"The only real question in the case, is whether or not the patentee was the first and original inventor of the above improvement.

"The burden of the proofs, both on the part of the complainant and defendant, bears upon this point It is insisted on the part of the complainant that the improvement was conceived and put into practical use as early as 1846, and if not, as early as the winter of 1847–8. The patent was not issued till 1855. I have looked with some care into the proofs, which are quite voluminous, and am satisfied this position is *not sustained.*

"On the contrary, the better opinion is the improvement was not perfected by the patentee till the year 1854. He went, according to his own account, to California in the winter of 1848–49, and remained there two years, and on his return he took up the *subject of the stereoscope*, and was engaged in considering new plans and new ideas on *this subject, and taking out patents thereon*, until he was taken sick and shut up in his room, when he applied himself to finish the idea of taking pictures rapidly in the centre of the lens, by adapting the movement in a frame, which would fit any ordinary camera. Again, he says, on his cross-examination, that it was *three years after his return from California* that he was sick, and which was in November, in the fall of 1854. He says, also, on his examination in chief, that he had *not perfected* the mechanical parts of his machine so as to carry out his ideas readily, when the California excitement *led him to go there.* He further says that the instrument made by Coburn in the fall of 1846, was *abandoned*, and that he then *contemplated* a *different* improvement: this was by moving the lens over the plate. *This idea* was not in the first patent *at all*, and is only alluded to in the reissued.

"Now, *the proofs are full* that this idea of making the same impression on different parts of the same plate by the use of a sliding plate-holder, and *carried into practical operation* by working machines, *existed as early as* 1847–8, and in use by several practical photographers some *seven* or *eight* years before the date of the patent of Southworth, and before he had *perfected his machine.*

"Entertaining these views, it follows that a decree must be entered for the defendant."

This is a most satisfactory and just decision. One not hastily made, but made after a careful perusal of the evidence on both sides.

We rejoice with our fraternity over the result. We have no reproach to make against the patentee, Mr. Southworth. He is a gentleman well known, and much respected in the profession, and has been of value to the art. No one has been more ardent, or more sincere in furthering the interests of the art, and we believe he was sincere in his belief that his patent claims were valid; but that was his *great mistake.* Although the decision is against him, it will not prevent his continuing to make the excellent boxes he has been furnishing to the trade, though he cannot rightly collect license fees for using them.

And now, one word for Mr. Schoonmaker. He left the profession some time ago, and is in an entirely different business. But as a matter of principle, and upon the promise of the craft that he should be repaid if he succeeded, he persisted in pushing the case to issue, and the result is in *your* favor, not his. It is now plainly the duty of every one to honestly contribute their full share to the expenses. We know well the labor he has had. Thousands could not repay him, but let him be *promptly* remunerated, *fully* for the amount he has expended at least. We append his note to the fraternity and hope it will be responded to.

"A word to the photographers, and we are done. 'We have met the enemy and they are ours.' The two great and leading impositions on the fraternity, the Bromide and Sliding Plate-holder, are no more. The Bromide was fought by the fraternity (myself included), the Plate-holder by myself alone. I simply add these few remarks to Judge Nelson's decision, to remind the photographers of their promises, that if I would fight this through and kill the humbug, they would then contribute something to reimburse me for the money I have paid for witnesses, etc., and paid principally for their benefit. They have a chance now to redeem their promises Besides a little over two thousand dollars, I have spent eight months of valuable time, and taken nearly twice as much evidence as was taken in the Bromide case, and done a great deal of work, which, if done by attorneys, would have cost several thousand dollars. The collectable cost out of them does not amount to much. I have received, thus far, $58. Those who would have had to dance to the tune of many hundred dollars, (if Wing & Co., had succeeded,) and those who like to see justice done, and are willing to contribute their mite, can do so by addressing me, at Troy, N. Y. Very respectfully,

C. C. SCHOONMAKER.

PRACTICAL NOTES ON PHOTOGRAPHIC SUBJECTS.

BY G. WHARTON SIMPSON, M.A., F.S.A.

The National Association.—Although my "Notes" are usually confined to essentially practical subjects, by which, I mean subjects absolutely connected with operative photography, I feel that the whole character of your National Association is so thoroughly practical, that I am not really digressing from my professed purpose, in making one or two observations on the subject. It seems to me that the scope and purpose of the Association give it a character essentially different from that of any existing photographic organization. The photographic societies of the Old World have always scrupulously avoided consideration of anything connected with the interests of photography as a trade or profession. Its scientific and art aspects alone have been subjects of discussion. In some of them—the Photographic Society of London, for instance—for many years, persons in any way connected with photography commercially, were ineligible for election on the council. Such societies as the latter aimed essentially to assimilate their constitutions to those of other learned societies, such as the Astronomical Society, the Chemical Society, the Society of Antiquaries, and other similar bodies. Some of the local photographic societies, less ambitious, and more social in their aims, have been irreverently termed "gossiping clubs." Their especial object has been to compare notes of experience in working photographic processes, an aim of immense value in securing progress. But until the establishment of the National Photographic Association of the United States, I do not know of any attempt to form a guild of photographers, in which the interests of photography, as a trade or profession, should be considered as well as that of photography as a branch of art and science. The National Association begins, therefore, with a new aim: without precedents or traditions for guidance or suggestion. It has to steer between the Scylla of neglect or indifference to trade interests and the Charybdis of trades-unionism.

I have been much interested in the proceedings of the recent convention, and pleased with the promise of a powerful and widespread organization, which seems to be within reach of American photographers. Two especial points of importance in relation to the action of such an association are impressed on my mind: one is the primary importance of using its influence to check suicidal competition in its aim to reduce prices, by which reduction, quality and art value must inevitably be deteriorated or destroyed; and the other is the impossibility of doing this by restrictive tariffs, or attempts at absolute uniformity in charge. Indifferentism would allow every man to charge whatever he might choose, without reference to the interests of the profession or the charges commonly made; trades-unionism would insist on uniformity of price without any reference to uniformity of excellence. The former is injurious; the latter impossible to carry out. The influence which such an association can however exercise, legitimately and beneficially, is that induced by the creation of an *esprit de corps*, which will check suicidal competition and promote good understanding amongst its members in relation to commercial enterprise.

One of the most serious evils which photography has had to contend with has been this tendency to low prices, arising out of reckless competition. The fatal facility with which a little of the art can be acquired, and the small amount of capital with which a business, in some fashion, could be commenced, have aided in bringing about this destructive tendency. A correspondent who has recently visited Venice gives me some startling facts in illustration of this position. In that city, photographs from negatives 14 inches by 10 inches, mounted on cardboard, with margin, are sold retail at a franc and a half each, equivalent to about 30 cents, gold. These are not produced at some one-horse establishment unrecognized by the profession, but at the best establishments in Venice. Signor Ponti, who is perhaps at the head of the profession in Venice, and was the first professional photographer established there, told my correspondent that his price at first was 20 francs, equal to 4 dollars, gold, for the same pictures. But one and another commenced cutting down the prices, each endeavoring to undersell the other, until the present absurdly low and barely remunerative figure has been attained. We have here in a single compact city an epitomized history of the general tendency of photography and of its inevitable issue unless photographers are wise. The National Association presents an agency which will assist in stemming this tendency, and in moderating if it does not entirely avert the fatal declension in prices, which means degradation in quality and in position of photography and photographers.

Opal Prints on Plain Glass.—I have recently been experimenting with a very elegant modification of the collodio-chloride process for producing opal prints on plain glass. I have said opal prints; but the term requires modification. They are rather like prints on white marble, smoothed, but not polished, as the surface is of a pure, dead white.

The process is due to Mr. Charles Durand, who communicates to me his mode of working as follows:

"Put into a small mortar a teaspoonful of kaolin, add thereto about a quarter of an ounce of sensitive collodio-chloride, and well stir with the pestle until it becomes a smooth paste. Add to this three-fourths of an ounce more of the collodion, and again stir, and pour the whole into a bottle with one or two drops of castor oil. Well shake, and place it aside until the coarse particles have subsided.

"Edge a piece of talc or glass for about a quarter of an inch all round with dilute albumen, afterwards coat with the kaolin collodion, and dry by gentle heat, when the talc or glass, if placed upon a piece of white paper, will have the appearance of alabaster.

"If the film splits, it should have a trifle more castor oil in the collodion; but the best remedy is to choose a more powdery collodion.

"If the film is upon glass, the progress of printing may be examined from the back; but if talc be the medium used, it may be turned back in the same manner as when printing upon paper.

"Tone, fix, and wash in the same manner as with an ordinary collodio-chloride print upon opal glass, and mount in a frame or case, to protect the picture from being scratched. It must not be varnished.

"After three years' trial, the film has been found not to crack or leave the talc or glass after the picture has been once finished.

"Many pretty effects may be produced by putting different colored papers behind vignettes produced in this way, as whatever color is placed behind the picture gives a delicate tinge of that color to the picture."

I may add that I have tried oxide of zinc in place of kaolin, and that it also gives a good effect, but not better than the latter. There is another point worth naming. For those skilled in the use of powder colors, here is the most delightful surface which can possibly be worked on. The surface has a tooth which *bites* the color most perfectly, and the purity of the white gives a rare delicacy and brilliancy to the applied colors. By skilful manipulation and some knowledge of flesh painting, an effect resembling a highly-finished miniature can be obtained. A good print produced in this way on mica, and backed, to give warmth, with cream or buff-tinted paper, makes one of the prettiest, cheapest, and most easily produced portraits for a locket which can be desired.

Transferring Collodio-Chloride Prints.—The same gentleman, Mr. Durand, has recently brought under my attention a very neat mode of transferring collodio-chloride films; an operation which, besides being very useful for many purposes where photographs are required on wood, metal, porcelain, etc., for decorative purposes, has also the advantage of giving prints on paper of great promise of permanency, inasmuch as the paper support has never been in contact with the hypo-fixing bath.

The mode of working is as follows: Thick *Rive* paper is coated with a solution of India-rubber in benzole, similar to that used in Swan's carbon process. A sufficiently thick layer of this India-rubber varnish is required, to prevent the collodio-chloride from permeating the paper. Collodio-chloride of good quality, containing a few drops of glycerine to each ounce, is then applied to the India-rubber surface, which has, of course, been permitted to dry first. The printing, toning, and fixing are then conducted in the usual manner, the non-absorbent surface yielding unusually brilliant prints. When completed and dried, either the surface of the print itself or the surface of the mounting card, or mounting paper, whichever be used, is coated with a thin, clean solution of gelatine, to which a trace of glycerine has been added. This is allowed to dry, and the print and the paper or card are then immersed in water, and the two surfaces brought into contact; the water between being pressed out in an even wave prevents air-bubbles. After drying, the prints are passed through the rolling-press, and the India-rubber paper being then moistened with benzole, comes easily away, leaving the print on its final resting-place. In card-work, if the print on the India-rubber-surfaced paper be carefully trimmed, and then laid on the card in mounting in its proper place, the finished result is very pleasing, as the film becomes in the process of rolling slightly imbedded in the card, the thickness of the India-rubber paper and the pressure serving to produce this result.*

LABORATORY MEMORANDA.

BY M. CAREY LEA.

COMFORT and satisfaction in carrying on operations in a work-room or set of rooms, are greatly dependent upon little matters of arrangement,—matters that often seem almost too unimportant for special attention, or which have been overlooked until too late. Habit also will, in many cases, lead us to be content with arrangements in which small changes, if properly understood, would result in a saving of both labor and time. It is this consideration that leads me to set down a few suggestions which, though they may seem trivial, are really not so, at least to those who desire in each day to accomplish the largest sum-total of work.

Tables.—Almost all tables arranged for laboratories are *too high* by several inches. Twenty-nine to thirty inches is the common height: it should be twenty-six to twenty-seven. Most manipulations are performed not on the table, but over it. In heating operations, the object exposed to heat is almost always at some little height above the table, and if this last be too high the operator does not see the object upon which he is working with the same facility as if the table were lower. He is obliged to stand more, and is sooner fatigued.

It is always a mistake to put *drawers* into a laboratory table. Accidents will happen, vessels will boil over or break, liquids are spilled, and sooner or later the contents of the drawer are rendered worthless.

On the other hand, a *case of drawers* so placed in front of the table that the operator has room for a chair between,—a chair with a pivot, so that he can turn in a moment to the case of drawers and obtain whatever he wants,—filters, corks, cork-piercers, files, writing diamonds, etc. etc.,—such an arrangement is exceedingly convenient, and the articles themselves are safe from danger.

Water Faucets.—To have hot water as well as cold at command from the tap is exceedingly convenient, and a new sort of cock lately introduced is most excellent. Frequently we wish to introduce tepid water into thick glass vessels, which will not bear hot water without great precaution. The faucet to which I refer has but one mouthpiece, but has two handles or keys. If one be turned, hot water runs from the spout; if the other, cold. By turning both at once, and regulating the amount to which both are turned, we get a stream of tepid water of just the temperature we desire, the hot and cold being thus mixed in the pipe. I have recently had two sets of these put up, and find them very useful.

A Tray, supported on two X shaped pieces, running on castors, and standing about as high as an ordinary table, I find very convenient for transferring apparatus from one room to another, or from one part to another of the same room. Many journeys are saved by the quantity that it permits to be moved at once.

Gas.—The best method of arranging gas is to have pipes coming from the floor up through the tables, at all such points where it is intended to work. Each tube passes perpendicularly through the table; at a height of two or three inches above the table it has a branch right and left, for slipping on rubber tubes. The main stem continues eighteen inches or two feet above the table, and terminates in an Argand burner. The convenience of having such burners everywhere round, and to have at command a strong light just where wanted to continue one's work, when daylight fails, without a moment's intermission, is inappreciable.

Examining Negatives.—Those who do not keep by them a regular *retouching desk* will find the following arrangement very convenient: A piece of smooth pine board, about eighteen inches square, has an upright piece attached at each side, about six inches high in front and eight or nine back. A groove cut in these lets in a piece of finely ground glass, on which the negative lies—a ledge in front keeps it from slipping down. A piece of looking-glass laid underneath, or even a piece of clean white paper sends up light enough, and the negative may be studied at leisure, and any little retouching that may be wanted can be conveniently done.

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* Mr. Simpson has sent us notes on "Carbon Printing without Transfer," "Shellac and Gelatine as a Sizing Material for Photographic Prints," and "Alkaline Development," which we are compelled to lay over for want of space.

Precautions against Fire.—The photographer deals with some singularly inflammable substances, and no one who works, as he does, continually with alcohol and ether, can consider himself safe from danger by fire; therefore it is a useful precaution to have a piece of India-rubber hose of a diameter suitable for putting quickly over the water faucet, and of length sufficient to carry water instantly to any part of the premises. It should not be forgotten that water will not extinguish ether, because the ether floats upon the water, continuing to burn, and is thereby extended more rapidly. Wet sand is the best means of extinguishing ether.

Those who are temporarily or permanently out of the reach of illuminating gas are driven to use alcohol. Alcohol lamps in any but the most careful hands are a most fruitful source of accidents, and even where the best of care is taken are not very safe. The glass alcohol lamps with ground caps are especially dangerous. I have repeatedly had these blow up, throwing the burning wick and spirits of wine in various directions; so that I have wholly abandoned their use under any circumstances. Even when a channel has been carefully filed in the cork, I have known them explode; and where this is not attended to the danger is very great. Explosions are most apt to come when the lamp is used for heating. The heat is sent down again from the surface to which it is applied, the lamp becomes warm, the air within expands and drives out the wick. As just said, a channel should always be filed in the cork,—a sharp notch lengthwise, made with a three-cornered file. But sometimes, again, the air inside seems to take up enough alcohol vapor to become explosive, and accidents happen in this way as well as from expansions. Wherever gas is attainable, no one should admit an alcohol lamp into his laboratory. But where they are a necessary evil, the "Berzelius lamp" is the best; the body of the alcohol is kept cool. But even with these, a little tilting sends a burning stream of alcohol over everything in the way. As alcohol can readily be extinguished by water, it is less seriously dangerous than ether.

Labels.—Those who trust to mucilage for fastening labels to glass, will find them in time drop off, thus giving rise to inextricable confusion. *Paste* is the only suitable thing for use, and it may be made to keep almost indefinitely with the aid of carbolic acid. A drachm of carbolic acid to eight ounces of paste is what I have used with great satisfaction, and always keep it by me. Labels should never be written on *thick* paper; there is treble the danger of their becoming detached. The paper need not be very thin, but stiff writing paper is to be avoided.

"REMBRANDT EFFECTS."

Mr. Editor: To "stand corrected" is not always an ungraceful pose, and is especially becoming, when submitted to in the spirit of an inquirer after truth, in order to obtained an accurate "expression" of any proposition, scientific, historical, or otherwise. For such a purpose, I think I should not shrink from receiving in my own person, the necessary "adjustments" from a brother photographer, and would frankly say, "Your view, sir, is better than mine; it is accepted."

But the same sense of justice would equally impel one to refuse to allow a pseudo correction, wherein the would-be corrector should call out, "You are wrong," but stop short of the "proof."

At the foot of the first column of page 245 of the *Photographer* (last July No.), my friend Mr. Kurtz, says, "In conclusion, then, I should like to correct a statement made by Mr. Baker about statuary taken from the dark side, relieved by a still darker background (black velvet). I saw similar effects in some daguerreotypes eighteen or twenty years ago, in Frankfort on the Maine, and the same effects about nine years ago in London."

A shorter extract would not do justice to Mr. Kurtz, who, I wish had quoted as definitely and as much at length from me. It took me some time to decide what "statement" of mine was referred to, and even now I hesitate, for the only sentence, and it is a very simple one, which can be meant, must have been read, or rather glanced over, in so cursory a manner, as not to have been received in its sense at all. I apprehend that it is my very first four lines, which, photographed from page 176 of the June No., reads as follows, "My attention was, about a year ago, first called to this style of picture, by some photographs of marbles, said to have been taken in London."

Mr. Kurtz apparently is impressed with the idea, that I thought those effects were for the first time produced only a year ago, and that I said they had a history no more ancient than a twelvemonth. Whereas I only state that I first saw them a year since, and do not imply their absolute age. If I had said of the ocean, "One year ago my eye first beheld its tossing waves," would any one think it was meant, that at that short period the waters were first gathered to their places, and became the great deep? My object was simply to state the limitations of my individual experience in the matter, and in so doing it is not to the point, that these effects were attempted two years ago by a metropolitan artist, or seen twenty years ago in a foreign land.

The smallness of the matter in argument, may seem hardly worth the space it claims in your Journal, but as the boy said, who failed to get the half cent in making change, "It hain't the value of the thing, but the principle." So I say the principle; let not one man call another wrong, till he has carefully examined his own grounds, and thoroughly knows what the other means, particularly in a case so easily apprehended as the present, where the blunder is enormous because of its transparency.

That no one may misinterpret the above remarks as arising from an unfriendly spirit, let me add that having lately had the pleasure of making Mr. Kurtz's acquaintance, and of examining for the first time his productions, I was equally struck and charmed with the versatile talent he displays, with the artistic force and harmony of his work, with his new and unique arrangement of a special light for producing the Rembrandt Effects, and above all with the genial cordiality and good fellowship of the man, who gives the best proof of being a first class artist by scorning all secrets, and I confidently anticipate a great treat in his coming illustration, particularly as he publicly pledges to do his best.

Lastly, cannot you, Mr. Editor, help us to re-christen these Effects with some name not so highfalutin, and more descriptive to the general ear, than the present "Rembrandt." But few of our customers through the land know anything about Mr. Rembrandt. Who he was, what he did, and how he did it, has to be explained to them, and so the appellation is to the public arbitrary, and without signification. So of our "Salomon" style, of which apropos, a little story. Two weeks ago "we" were in a certain city (not Philadelphia), and went to a certain stock-house, seeking what we might find, and having heard that they had some of the famous Parisian's work, asked to be shown their "Salomon pictures," and were met, by the polite clerk, with the hesitating counter inquiry, "Do you mean photographs of Solomon's Temple?" The photographs were in the house, but we came away and did not see them. Since that, against Shakspeare we hold, that there's something in a name.

By all means, if possible, let us have a name simple and appropriate. People seem to naturally inquire about those "shadow pictures." Can any hint be gained from that?

W. J. Baker.

Buffalo, N. Y.

Good chemicals are always true; like clock-work, they cannot be reversed in their action and work well.

APPARATUS FOR SENSITIZING PAPER.

As some of our readers are already aware, an apparatus is being offered for sale, with a great many claims attached to it, for sensitizing photographic paper, the invention of Mr. W. S. Lukenbach.

The apparatus is simply this: A light wooden frame, a little larger than a whole sheet of paper, is made, over which is stretched a piece of black muslin or cloth, slightly slack in the centre. At each corner of the frame elastic cords are fastened, and with each cord is connected a clothes-clip. This is the whole apparatus.

To use it, proceed as follows: Fold up the edge of the sheet to be sensitized on all sides about ¼ inch, making as it were a shallow dish; place it upon the black cloth; pinch each corner with a clothes-clip, stretching it by the gum cords until it is tight enough. Now it will be seen you have a shallow dish ready to receive solution. Take 3½ oz. of plain silver solution in a graduate, and pour it gradually in the centre of the sheet. Move the frame gently from side to side, causing the solution to flow over the paper three or four times. After which you detach three of the clothes-pins, leaving the one on the opposite left hand corner fast; the gum cord of this pin must be made sufficient in length to allow the paper to be moved to the right corner of the frame, the slack of the cord being taken up, while silvering, by placing over one or two hooks in the side of frame, placed there for this purpose; raise the frame gently on the left, allowing the solution to run off at the right hand corner into your glass funnel; filter into your stock-bottle, and repeat for each sheet of paper you sensitize; drain the paper and hang up in a dark-room; when perfectly dry, it is ready to print. Any portion of a sheet can be sensitized on this frame by dispensing with the gum cords, which you will not want after a few trials, and become accustomed to its use. A 50-grain solution is recommended. This is the whole story. It is backed up by sundry claims, which we think much experience cannot justify, namely: "Less time and silver are required; paper dries more quickly, and fuming is unnecessary; paper is more sensitized, and requires less time to print; gives the picture a finish like enamel; less gold is required to tone; any desired tone is more readily obtained; pictures are superior in every respect, made in less time and at less expense."

We state these extravagant claims from the inventor's circular, as he is now endeavoring to dispose of his "rights" through the country.

As inventors are sanguine, in order that our readers may not be deceived, we are in duty bound to say, that Mr. Lukenbach's frame only is new and patented. His process of sensitizing is not. Many of our readers are accustomed to folding up the sides of the sheet to hold the solution when sensitizing it. Such a plan is old and doubtless well known.

The only advantage we can see in this apparatus is that it makes the old process easier where one desires to sensitize a whole sheet in a hurry, and has not a large pan at hand. For smaller work the common method is best.

We desire to correct a statement in the circular issued by the patentee, wherein he calls attention to his advertisement in our Journal. His advertisement has not been allowed to appear herein.

GERMAN CORRESPONDENCE.

American pictures—Dry processes—Woodbury process—On the reproduction of negatives—Ort's collodion.

A FEELING of melancholy almost overcomes me in writing these lines, when I think that a few weeks ago I received your kind invitation to accompany the expedition for the observation of the solar eclipse, and that I could not avail myself of the opportunity of visiting a country to which I am bound by all the ties of sympathy, as my shattered constitution would not permit it.

I also learned, with much regret, that the German photographs for the Boston exhibition had arrived too late.

An evil star seems to influence our efforts in America, while, on the other hand, the American products meet with success and acknowledgment all over Europe.

The very interesting pictures of Baker, in Buffalo, and Kurtz, in New York, which you sent me some time ago, have been the theme of rather lively discussions with us. Several sessions of our Society for the Promotion of Photography were occupied with the consideration of Rembrandt Effects; and several of our photographers here have made practical trials in this line, as, for instance, Grasshoff. But the effect is considered more from a business than an artistic standpoint. It has the charm of novelty for the public. As regards the artistic value, our ideas here generally coincide with those of Kurtz, in New York, which he expressed so ably in an article in the July number of your Journal.

The pictures of Kurtz which have come under my notice show an artistic taste and a certain characteristic conception which is quite original. He does not imitate Adam Salomon or other artists. He creates according to his own inspiration, and has a style of his own.

But it is not my province to report on American, but German photography.

One of the favorite subjects of experimental photographers is the working of dry-plates. How much has been written on this point. All organic and inorganic substances have successively been tried,—albumen, tannin, linseed, coffee, tea, sugar, honey, molasses, beer, gum, glycerine, rosin, etc., etc.

At present the Gum Process is in vogue, and gives really fine results. I must confess, however, that after years of trial, I have arrived at the same conclusions as my friends, Remele and Braun, in Dornach. The latter told me that he had spent 15,000 francs on experiments with dry-plates, and that at present he worked the said process under all circumstances, even on the glaciers, and the most inaccessible points of the Swiss Alps.

The results are more certain, and in spite of the large amount of baggage to be carried, the working is easier and less laborious than with dry-plates.

How much care and labor is necessary to produce a dry-plate,—long sensitizing, washing with common and distilled water, covering with preserving solution, covering the back of the plate, drying, etc.

It is easy to pack chemicals, apparatus, and tent, in the same time which it requires to prepare a single dry-plate, and if we add to this the very tedious development, I feel confident that the saving of labor and time is largely in favor of the wet process, and dry-plate photography must confine itself to places that are inaccessible to the tent.

With the new dry process, the Albert process has been thrust again in the foreground.

You have had an opportunity yourself to judge of the results of this invention, and I have only to remark, that I have recently seen much finer specimens than those which I sent you a few months ago. The only question that remained, was how many prints a plate would furnish, and how many specimens would be spoiled in the process, in short how much an edition would cost. For the first time now, Mr. Albert has procured a large number of prints from a single plate, having furnished a thousand carte de visite copies for the *Photographic Correspondence* from a single plate. As you must have obtained a copy, you can draw your own conclusions. I do not consider the pictures as fine as silver prints, but they excel in half tone everything which has been produced heretofore by Photolithography.

I hope soon to be able to get from Mr. Albert an illustration for your Journal.

The Woodbury process, which has been so long in an experimental state, is now worked practically by Goupil & Co., in Paris. They copy oil-paintings, and I have received from them an edition of 1500 prints for the "Mittheilungen." The several proofs show in regard to intensity and detail some difference. The price is, unmounted, 160 francs per thousand; mounted, they are twice as high. At present very little money is saved as compared with silver. The reason why the mounting increases the expenses so largely is, that the dampened prints for mounting are easily spoiled.

A few months ago I reported to you about the chloride of silver collodion, and its employment in the reproduction of negatives. Since then the use of this collodion has largely increased, and Obernetter, in Munich, manufactures it on a large scale, and I myself have lately made experiments which promise much.

The process is very simple. A clear plate of glass is covered with albumen made from the whites of four eggs and two ounces of distilled water, the whites are beaten to a froth and the clear settlement is decanted after three hours of rest.

The covering with albumen gives no trouble; the liquid is spread even with a glass rod, the excess poured off and the plate is left to dry. These plates will keep for months. They are subsequently covered with chloride of silver collodion, dried and placed with the negatives in a copying frame and exposed in the usual manner, only using the precaution of covering the back of the collodion plate with a dark cloth. The picture appears in a peculiar manner. At first the negative retouched appears very prominent, but disappears again. It is necessary to over-print considerably, as the picture fades very much in the toning and fusing processes. We obtain in this way a really very fine positive transparency. The toning can be done with any of the well-known sulphocyanide toning baths. If it is desired to take a negative from this transparency then it will be better not to tone at all, but to fix at once, An untoned picture will have a brownish color, which is less actinic than a toned one. After fixing, the plate is washed and dried. Varnishing is not absolutely necessary, as the plates keep well without it.

The negative is obtained from the positive by a simple repetition of the above described process, and if the plates employed have had flat and even surfaces, the copies will be nearly as sharp as the originals.

The beginner in this process will get a picture in which he will find the proportion between light and shade somewhat different from the original. This is caused by not timing the exposure correctly, either in taking the first positive, or the second negative, and to accomplish this correctly requires some experience.

I have lately found a very simple way of strengthening chloride of silver plates, by means of iodide of mercury.

One part of chloride of mercury is dissolved in 40 parts of water, and a solution of iodide of potassium of the strength of 1.10 is added, until the red precipitate is redissolved.

With this solution the fixed and washed plate is frequently flowed, and will take a greenish color, which on washing will turn yellowish brown.

Mr. Adolph Ort, of Vienna, has recently published a very good formula for the preparation of chloride of silver collodion, which I give below:

Take of Cotton, . . .	2 parts.
“ Alcohol, . . .	50 “
“ Ether, . . .	50 “

In a pound of this collodion 75 grains of crystallized chloride of magnesium are dissolved by constant shaking; add to this $\frac{3}{8}$ of an ounce of crystallized nitrate of silver dissolved; $\frac{1}{2}$ ounce of water; shake for four minutes, and finally add 1 drachm of citric acid dissolved in 2 drachms of water and 2 drachms of alcohol. The collodion is left to settle for two days, when it is ready for decantation. It will keep for a long time.

Besides the above, Ort uses the following collodion:

Collodion, ...	$1\frac{1}{4}$ pounds.
Chloride of Magnesia, . .	60 grains.
Nitrate of Silver dissolved in water, as above, . .	$\frac{1}{2}$ ounce.
Citric Acid, . . .	1 drachm.

He prepares his albumenized plates by first flowing them with collodion No. 1, and afterwards with No. 2.

He also makes enlargements by this process; he first makes a positive, and then takes with the camera, in the ordinary way, an enlarged negative.

Yours, very truly,

Dr. H. Vogel.

ON PAPYROXYLINE, OR SOLUBLE GUN PAPER.

BY E. LIESEGANG, PH.D.

The special advantages of papyroxyline with wet collodion processes, are the great sensitiveness of the film, and its perfect solubility. Both of these properties have been well established. That a collodion perfectly structureless, must yield finer pictures than one *with* a structure, is self-evident. This property is also of considerable importance in the production of microscopic pictures, as well as in that of enlarged microscopic objects.

It was scarcely to be anticipated that paper collodion would be more sensitive than cotton collodion; and yet such proves to be the case. I have now before me three photographs by Herr Jos. Albert, of Munich. On each plate are two portraits—one executed with paper collodion, and the other with cotton. The two layers were silvered, exposed, and developed at the same time. In every case the paper collodion shows considerably more detail in the shadows than the other; and where the latter has received the correct exposure, the former is much overexposed. Herr Rensing, of Amsterdam, also writes to say that he works considerably faster with the paper collodion than with that made from cotton-wool.

The layer is likewise firmer, and clings better to the glass.

Particular directions for the use of paper collodion are not required, because papyroxyline is employed in the same manner as wool pyroxyline. As, however, I have been requested by many to do so, I give one prescription:

Ether, ...	750 grains.
Absolute Alcohol, . .	450 "
Papyroxyline, . . .	18 "
Rectified Spirits of Wine,	150 "
Iodide of Cadmium, .	10 "
Iodide of Strontium, .	10 "
Bromide of Cadmium, .	8 "

The solution is filtered and mixed with the collodion.

The silver-bath for this collodion must be at least eight per cent., and the developer must not be too weak.

For collodio-chloride, it appears that a mixture of paper and cotton is best adapted. On the last occasion we used the following:

Ether, ...	600 grains.
Alcohol.	600 "
Papyroxyline, . . .	9 "
Collodion Cotton, . .	3 "
Chloride of Lithium, .	5 "
Citric Acid, . . .	3 "

This collodio-chloride was filtered, and 24 grains of the finest powdered nitrate of silver put into it by small pinches; and after each addition it was properly shaken.

The nitrate of silver must be in an exceedingly fine state of division, so that not a grain of precipitate may result. Lastly, 3 drops of Canada balsam should be added. If the collodion film on the glass, notwithstanding the warming of the plate, does not continue the same, but shows crystallization, thicken the collodion by adding 1 or 2 grammes of papyroxyline.—*Photo. Archiv.*

We have secured the best of results with Dr. Liesegang's papyroxyline, and like it very much. Mr. Fennemore, we understand, uses it in his daily practice, and also in his celebrated salted collodion. It seems to be all one could desire. We find, as Dr. Liesegang says, that a little stronger developer is needed than for cotton, but that, of course, must be regulated according to circumstances, the same as when using cotton. —Ed. P. P.

THE ECLIPSE EXPEDITION.

PROF. MORTON'S OFFICIAL REPORT.

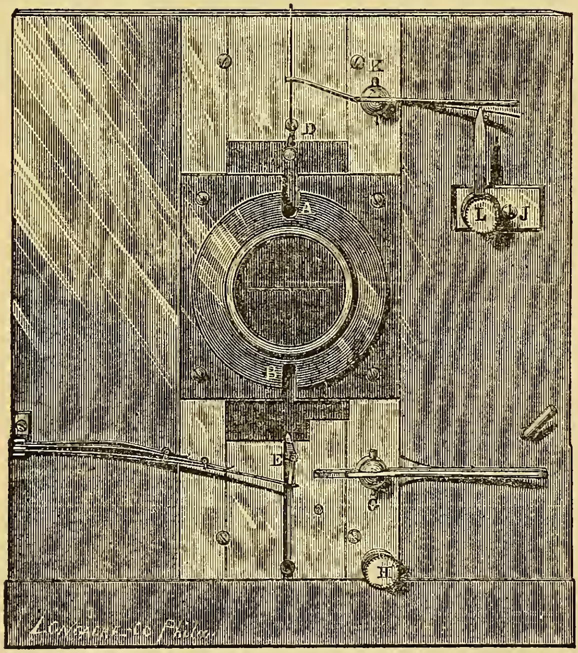
We are indebted to Prof. Morton for advance proofs of his official Report on the Government Eclipse Expedition to Prof. Coffin, and from which, by his permission, we extract and compile the following. It has been stated before in our pages, what size and kind of telescopes were used by the Expedition.

The next point to which attention was directed was the arrangement of the instruments for their photographic work. It was a question of much moment, to decide whether we would follow the plan adopted by the French and German expeditions of last year, and make the photograph in the principal focus of the object-glass, thus securing great intensity of light in a small image, or follow the method employed by De la Rue in 1860, when he used an ordinary Huygenian eyepiece so placed as to produce an enlargement of the first image from the objective.

After a careful study of De La Rue's report and pictures, as also those of the later expeditions, I came to the conclusion that the plan of enlargement presented many advantages, and should be followed by us, with certain modifications, which I will proceed to describe.

The work of designing and constructing these lenses, and also the attachments to the cameras for securing exposures of various degrees of rapidity, from a very small fraction of a second to any desired length, was placed in the hands of Mr. Joseph Zentmayer, whose extended scientific attainments, combined with unrivalled skill in the construction of optical instruments, peculiarly fitted him for such a task.

The camera, as finished, is represented in the accompanying woodcut, which shows it as seen from directly in front.



Here A B represents the face-plate of the camera, to which the eyepiece tube was attached, its other end being screwed to the telescope. The diaphragm plate, D E, moved across the axis of the instrument, being drawn downwards by the combined spring, E F. The strength of this spring could be reduced by raising the outer end of one or both the upper strips so as to disengage the forks at their end from the lower spring, and then turning them forward in a direction normal to the front of the box, out of the way.

The spring was attached to the diaphragm plate by a swivel hook, E, which, while in no instance falling out, could be detached and readjusted with the greatest facility.

A number of diaphragm plates were provided with slits respectively of $\frac{1}{40}$, $\frac{1}{30}$, $\frac{1}{20}$, and $\frac{1}{10}$ of an inch in width. These plates could be readily interchanged, and, in combination with the springs, gave a very wide and yet delicate series of fixed adjustments for the times of exposure.

To make the exposure, the plate was drawn up until the projecting pin, D, could be caught on the lever, K, which would then retain it. On depressing the outer end of this lever, however, with the finger, the hold on the pin was disengaged, and the plate flashed across the axis of the tube, allowing light to traverse the narrow slit C, as it flew past. The plate was then arrested on the end of the second lever, G. When an exposure of some seconds was required, as during the totality, a plate having a round orifice, exposing the entire field of the eyepiece, was substituted for the one with the narrow slit, and was so arranged that, when caught by the upper lever, it covered the lens, but when fallen to the second lever, exposed it entirely; when, however, this lever was in turn touched, the plate descended again far enough once more to close the lens. By touching these two levers in succession, it was then possible to make a "time exposure" with great nicety and accuracy, as was proved by actual experience during the eclipse.

To secure a chronographic record of each exposure, a binding screw, H, was provided, to make one connection with the general mass of the face-plate, including lever K, and another at L, to carry on the circuit when the downward motion of the lever brought the spring at its side in contact with the point projecting from L. In raising the lever for a new exposure, the spring at its side was pressed back, so as to pass the point without contact. A more substantial break-piece would have been made, had time allowed, but this was found to operate in a perfectly satisfactory manner.

* * * * * *

It was found by experiment that, with a clear sun, it was necessary to reduce the aperture of this telescope (which was 4 inches, and 50 inches focus) to 1½ inches, and to use all three springs and the diaphragm slide of $\frac{1}{40}$ inch aperture, in order to get a proper exposure when the solar image was enlarged from .6 inch, its diameter at the principal focus of the objective, to 2 inches on the ground glass. The same size of aperture was adopted for the larger instruments during the partial phases, the entire aperture, in all cases, of course, being used during totality.

* * * * * *

During the partial phases, accurately timed exposures were made by all parties, at intervals varying from a few seconds to ten minutes, and during the totality thirteen pictures, in all, were taken with the three instruments. Of these, six were made at Burlington, with exposures of five to seven seconds; four were made at Ottumwa, with times of exposure ranging from five seconds to sixteen. These are all admirable negatives, which show abundant detail, and, in some cases, much of the corona. Three pictures in totality were also made at Mt. Pleasant, but, for want of a clock-movement, are inferior to the others. One of the Ottumwa pictures, exposed at the very last instant before totality, shows a photographic record of the curious phenomenon known as Bailly's beads, being simply the last glimpse of the sun's edge cut by the peaks of lunar mountains into irregular spots.

One of the objects which it was considered desirable to secure, if possible, was a view of the corona. It was with this intent that some of the exposures were made so long.

The Protuberances.—Examination of the negatives shows us that five seconds was more than sufficient to secure all the details of the protuberances, although it gave no decided indication of the corona.

The development proceeded slowly in all but a few spots, where very massive prominences were located, and thus it was not thought, at the moment, judicious to try shorter exposures; but, in the light of our present experience, we would judge that exposures of even one or two seconds, with persistent development, such as could be best carried out on albumenized plates, would be of value to secure details in the rounded and massive prominences which appear at some points.

It is a curious coincidence, that in this case, as well as in the pictures made by De la Rue, in 1860, and the German and English party last year, all the more interesting prominences are situated on the border of the sun furthest from the advancing moon, and are thus best shown in the pictures first exposed.

The most conspicuous prominence is that which, at a hasty glance, seems to resemble the letter X, but, on more careful inspection, is perceived to be like an ear of corn. It consists of a solid central mass inclined at an angle of about 45° to the normal at the solar surface, and with three branches from near its upper end, one sweeping backwards in a direction generally parallel to the solar surface, another forward, as concerns the direction of the general mass, and a third branching out a little below and running in the same direction as this last. The appearance of the main body, which is of a spindle shape, and with spiral markings, is highly suggestive of a vertical motion which has swept these whiffs of light matter into their peculiar positions.

It was believed by several observers, that this object moved rapidly while they were watching it; but as the same positions are shown in the eight different negatives taken at Burlington and Ottumwa, which contain it, there can be no doubt of its permanent character.

It appears, however, beyond doubt, that motion, amid the light surrounding the sun, was observed, as there is much accordant testimony on the subject. But this motion, as we shall presently see, there is every reason to believe, existed in the corona, and not in the prominences, which, however, might easily have the appearance of movement, if seen against a background of shifting light. To this subject we shall refer again when speaking of the corona.

Immediately to the right of this ear of corn is seen a region of soft light, among which rise two similar spindle-shaped masses, inclining towards the corn ear.

To the left appears a mass of rolling cloud, disposed in beautiful streams and curls, like the smoke from a bonfire or burning meadow, swept gently toward one side by a light wind. In connection with these are some small masses, entirely detached and floating above the general body, as was the case in De la Rue's pictures.

Other solid nodular masses appear at other points, but the next most notable prominence is one which attracted the attention of all observers, and appeared to occupy a position on the lowermost edge of the sun. It is most clearly shown in the last pictures taken at each station, and resembles, in shape, a great whale, with a body made up of dense cumulus cloud-matter, with a long tail clinging close to the solar edge, and stretching some 40,000 miles along. The length of the entire mass is about 110,000 miles, and the height of its more bulky portion about 28,000 miles; while its length being about 70,000 miles, we would have for its cubic capacity, assuming that its extent in the remaining direction is equal to its height, about 54,880,000,000,000 cubic miles.

To the right of this, and only showing its entire length in the last picture of each series, is a caterpillar-like mass of cloud-matter, very much like the solid rolls of horizontal vapor which are sometimes seen passing over a sheet of water. At one end rises a projecting head, but the rest clings closely to the solar edge, and is indented with ring-like divisions, giving it much the aspect of a huge worm.

The Corona.—The Ottumwa pictures, of long exposure, are the only ones which give us any idea of the true structure of the corona; but they do more than I had hoped in this respect. One of them, the last and longest exposed, gives almost as full a development to this object as I remember to have noticed with the naked eye. The curved structure of the rays is most marked, and the varying intensity with which they are emitted in different points.

The most distinct outbursts of the corona light are evidently associated with those prominences which are of a pointed and flame-like shape; those of a massive description, on the contrary, seeming to cast a shadow on the corona. This, we think, is to be noticed in De la Rue's pictures.

These facts have peculiar significance when taken in connection with others developed by observations made during this same eclipse. In the first place, Prof. E. C. Pickering, of the Massachusetts Institute of Technology, who was with our party at Mt. Pleasant for the purpose of making various physical observations, found that while the sky was strongly polarized all around close up to the corona, that object itself was not a source of polarized light.

The instrument employed was a tube, having at one end a large plate of quartz, and at the other a double image prism of Iceland spar, made in the manner known as the prism of Rochon.

On looking through this at the corona, the entire circle was in field with a part of the surrounding sky, and two entirely distinct images of the entire area were seen, the corona in both being colorless, but projected on a ground of tints, complementary in the two images.

This would certainly indicate that the light of the corona was not reflected sunlight. With a spectroscope arranged to analyze the entire light from the totality phase, Prof. Pickering also found no dark lines in the spectrum. This also points in the same direction.

It would thus seem almost certain that the corona is simply an electric discharge, no doubt varying with great rapidity, as we see in the case of the aurora; and to its variations we may attribute those apparent motions of the prominences which have been observed by so many, but which our large series of photographs so conclusively shows not to have had any actual existence.

In conclusion, after expressing the highest approbation of the ability, energy, and harmony exhibited by his colleagues, Prof. Morton adds:

> I have also, on my own behalf, as well as on that of my colleagues, to thank you for that uniform kindness, courtesy, and consideration which has rendered all our relations of the most agreeable character, and made our labor of love in an equal degree a labor also of pleasure.
>
> Very respectfully yours,
> HENRY MORTON.

THE DES MOINES ECLIPSE EXPEDITION.

E. L. WILSON, ESQ.,
Editor Philadelphia Photographer.

DEAR SIR: In response to your communication of the 11th inst., requesting a few notes on the operations of the photographic eclipse expedition of which I had charge, I am happy to send you, with the permission of the Surgeon-General, the following short account of our proceedings: The party was sent by the Surgeon-General, U. S. Army, under authority from the War Department, from the Army Medical Museum, to Des Moines, Iowa, to co-operate with an astronomical expedition from the U. S. Naval Observatory at Washington.

The following was the *personnel* of the party: Brevet Major EDWARD CURTIS, Assistant Surgeon U. S. Army; Mr. A. E. LE MERLE, Hospital Steward U. S. Army; Mr. M. S. BRENNAN, U. S. Army; Mr. E. J. WARD, Photographer, Washington.

The telescope used was the large equatorial of the U. S. Naval Academy, at Annapolis, Md., loaned by Admiral Porter for the expedition. This instrument has an object-glass 7¾ inches clear aperture and 9½ feet focal length. It was fitted up with a camera-box of such proportions as to carry negative plates seven inches square, upon which the image of the sun, enlarged by an eyepiece, appears four inches in diameter. Two spider line position wires, crossing each other at right angles, were adjusted in the eyepiece at an angle of 45° to a parallel of declination. The arrangement for making the exposures was as follows. At a distance of about 2½ inches from the end of the eyepiece a partition ran across the camera-box perforated with an aperture just large enough to admit the entire cone of rays from the eyepiece. Immediately in front of this partition there slipped freely through rebated slots in the side of the box a slider of wood twenty inches long, pierced with two apertures of the same size as the hole in the fixed partition. These apertures were fitted up differently, one with an instantaneous slide for use during the partial phases of the eclipse, and the other with a simple sliding shield, to allow of more prolonged exposures during the totality. Either aperture could be brought over the hole in the fixed partition by simply running the slider to and fro for a few inches, and in either position the latter was held in place by a spring bolt on the side of the camera-box. The instantaneous slide was a rectangular plate of sheet brass, having a slot in it, whose width could be varied at pleasure, from the merest slit to a rectangular aperture half an inch in diameter. This slide ran freely on two brass guide-rods, around one of which was coiled a fine steel wire spring, to give the instantaneous motion. The slide when drawn up against the spring was held by a wire loop catching over a little pin projecting from a hair trigger attached to the free end of the wooden slider. This loop was released by the lightest touch upon the trigger, so that the timing of the exposures could be made with the utmost accuracy. The second aperture in the slider for use during the totality was fitted up with a movable shield of very thin brass, which could be rotated to and fro by being attached by a catgut cord to a milled head at the end of the slider, near the trigger of the instantaneous slide. By means of these two apertures in the wooden slider, the change from the arrangement for the partial phase exposures to that for the totality could be made in an instant of time.

The exposures actually used during the eclipse were excessively long, owing to the unfortunate weather that prevailed at Des Moines. Though the sky was cloudless and clear enough for observations with the eye, yet the dense haze that filled the air, rendering the whole western sky white instead of blue, was fatal to quick photographic work. During the partial phases, instead of two inches, the entire aperture of the object glass, large as it was, and the whole diameter—half an inch—of the instantaneous slide, had to be used to secure sufficient exposure, and during the totality the two plates for which alone there was time were exposed respectively 66 and 45 seconds, and even with this excessive exposure the development of the image was very slow. There were obtained in all, one hundred and twenty-two negatives of the eclipse, two being of the totality. These latter were timed exactly right for the red protuberances, and show the most exquisite detail in the structure of these strange appendages to the sun, especially in a group of faint fantastic forms on the eastern limb, which, throwing out long tongues of light, have the appearance of delicate flickering flames, in many cases entirely disconnected from the surface of the sun. The corona, stronger in some parts than in others, is also shown around the entire periphery of the moon. The large size of the negatives, the moon's disc being represented over four inches in diameter, adds to the distinctness and beauty with which the fainter and more delicate prominences are depicted, and it is believed that as photographic representations of the form and structure of the red protuberances these negatives stand unequalled.

Our plan of operations was as follows: Seven negative baths were used, standing in a trough of water to keep them cool; four plate-holders, and a large wooden trough with grooved sides similar to a negative rack, and capable of holding one hundred and fifty negatives. This was filled with a weak solution of hyposulphite of soda and provided with an overflow pipe. The wall of the dark-room adjoining where the telescope stood was fitted with two dark valves or dumb-waiters, by which the plate-holders could be passed in and out of the dark-room without the admission of light or the necessity of any of the operators moving from their places. The first operator's duty, was to coat plates and put them into the baths; the second took them out, wiped the backs, put them into the plate-holders and passed the latter out of the room by means of one of the dumb-waiters. The third operator,—he at the telescope,—took the plate-holder from the dumb-waiter, placed it in the camera, adjusted the telescope, exposed, noting the time by a chronometer standing at his elbow strapped to a tripod stand, returned the holder to the dark room by the second dumb-waiter, and recorded the time of exposure on a sheet of paper tacked to a shelf. The fourth operator took the plate from the holder, developed, washed, and then dropped it into one of the grooves in the large fixing-trough. There the plates remained, slowly fixing, till after the eclipse was over, when they were taken out in the same order in which they were put in, washed and numbered with a diamond. By this even distribution of labor, and by the help of the dumb-waiters and the large fixing-trough, negatives were taken at the rate of one every even minute during the eclipse—one hundred and twenty-two in all—with the utmost ease and deliberation. Each operator had about fifteen seconds to spare with each exposure, so that all were enabled to perform their duties coolly and carefully.

Negatives of the sun were also taken on eight different days preceding the eclipse and on the two following, and preserved as records of the appearance of sun-spots before and after that event.

There was nothing unusual in the photographic processes employed. A cadmium and ammonium collodion was used, a forty-grain bath slightly acidified with nitric acid, a rather weak iron developer, and hyposulphite of soda fixing-bath.

In connection with the solar photography I also made an elaborate series of photographic experiments to determine the exact amount of actinic force received from the sun at different hours of the day according to its height above the horizon. These experiments were conducted for eight different days, and comprise 79 photographic tests of the sun's chemical power.

In all respects the expedition was a complete success.

Very truly yours,

EDWARD CURTIS,
Assistant Surgeon U. S. Army.

Thoughts on Carbon Printing.

BY DAVID DUNCAN.

I THINK that a company composed of photographers and others, for the purpose of printing in carbon or permanent pigments for the trade, reproducing works of art, etc., similar to the Autotype Company of London, could be made to pay in this large and enterprising country. The more especially when one considers the rapid strides this nation is making in science and art, and the possibility of its creating a fresh demand, and stimulating the present laggard desire to possess photographic productions. Speaking generally, it is true that there are hindrances, but these may be "stepping-stones." The difficulties to be overcome may form the "rungs" of the "Ladder of Success."

Do the numerous patents which apparently impede its progress, make American photographers hold back? I think it would be profitable to pay the Autotype Company for the right of printing for profit here, if (using vulgar phraseology), they did not "come it too strong." I suppose they now hold the patent for this country? Is there a difficulty in making the "tissue" during the summer months? Cannot a place be built where the temperature would admit of its being manufactured successfully, even though it may be necessary to make it at night, as Mr. Braun, of Dornach, does?

Would it pay to purchase the "tissue" from the Autotype Company? Or would it be inconvenient? If not, why is it difficult to sensitize unsensitized tissue during "the heat of the day," now that a plan is claimed by Mr. J. R. Johnson in his recent improved patents for floating the "tissue" and drying it within an hour. I have lately succeeded in sensitizing some of Swan's No. c. 3, by pinning a piece to a flat board and brushing it over with a solution composed of *

Bichromate Potash (sat. sol.),	1 ounce,
Water, ...	4 ounces,

and, leaving it to dry on a levelling-stand, it dried quickly and gave successful prints. If the above are obstacles in the way of adopting the method of printing in carbon, there cannot be many more. The light here is peculiarly adapted for the work. I speak confidently, having had considerable experience with gelatine bichromatized, and having just succeeded in perfecting an original process of phototype, which cannot be surpassed. Now I am writing on carbon, one or two more thoughts. The plan suggested by M. Carey Lea, Esq., and patented by Mr. Johnson, namely, that of treating a glass with stearine, etc., and bringing the exposed tissue in contact under water, thus doing away with the rubber solution and press, seems to be a great improvement. I do not think the adhesion is as Mr. Simpson describes, viz., like a boy's "cleaver" or "sucker," but that the adhesion is due to the affinity, the exposed surface of the tissue has for grease or wax. If the developing water is too hot, the picture soon leaves the plate. It is an excellent idea to put carbon prints on glass, and I find some of them look handsome when backed with opal glass (not paper). How beautiful the Rembrandt pictures by Mr. Baker, of Buffalo, would look that way. I have asked questions, not knowing all the resources of this beautiful country. Be it remembered, that the above are "thoughts." The wisdom of them I must leave to be judged by you, courteous and respected editor.

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* On a very hot day, since writing the above, I managed to keep the pigmented gelatine from "running," by adding 1 ounce of alcohol to the formula given, and *floating* the tissue for a very short time. It printed very well.

PHOTOGRAPHING THE PATENT OFFICE DRAWINGS.

ANOTHER important recognition of the advantages of photography over any other method for the reproduction of drawings, has recently taken place. Commissioner Fisher, of the Patent Office, has issued the following:

UNITED STATES PATENT OFFICE,
June 15th, 1869.

IT is proposed, as soon as possible after the 1st of July, to photograph the drawings of the current issues, for the purpose of attaching one copy to the patent, of placing in the room of each examiner a copy of those belonging to his class, of binding a copy of each drawing for the inspection of the public, and for furnishing certified copies at cheaper rates than heretofore. The adoption of this plan has made it necessary to make essential modifications in the rules relating to drawings, to which the careful attention of inventors and agents is invited. It is absolutely necessary to the success of the undertaking, that the rules should be rigidly enforced, and drawings which do not comply with them will not be received.

The rules, which are as follows, go into effect immediately:

Drawings—The applicant for a patent is required by law to furnish duplicate drawings, when the nature of the case admits of them. One must be on thick drawing-paper, sufficiently stiff to support itself in the portfolio of the office for which it is intended. It must be neatly and artistically executed, with such detached sectional views as to clearly show what the invention is, its construction, and operation. Each part must be distinguished by the same number or letter wherever it appears in the several drawings. The name of the inventor should be written at the top of the shortest side, being considered as such.

This drawing must be signed by the applicant or his attorney, and attested by two witnesses, and must be sent with the specification.

Tracings upon cloth, pasted upon thick paper, will not be admitted.

Thick drawings should never be folded for transmission, but should be rolled.

The duplicate drawing to be attached to the patent, will be furnished by the office at the expense of the applicant, and will be a photographic copy of the thick drawing. A fee of fifty cents per sheet of 10 x 15 inches, will be charged, which must be transmitted with the final fee.

If the applicant does not choose to pay this fee, he must furnish the duplicate drawing, as heretofore. This must be on tracing muslin which will bear folding and transportation, and not on paper. It need not be forwarded until the patent to which it is to be attached is ordered to issue. It must have, for the purpose of attaching it, a margin of one inch on the right hand.

Copies of drawings of patents, issued after July 1st, will be furnished to any one at the uniform rate of fifty cents per sheet of standard size.

The following rules must be observed in the preparation of the drawings, in order that they may be photographed. They must be executed in deep black lines, to give distinctness to the point. In shading small lines of black, ink should be used.

Pale, ashy tints should be dispensed with. All colors except black should be avoided, even in lettering; but light blue, pink, and brown are entirely inadmissible, and deep blue, yellow, and carmine take black.

The sheet must not be larger than 10 x 15 inches, that being the size of the patent. If more illustrations are needed, several sheets must be used.

Applicants are advised to employ competent artists to make the drawings, which will be returned if not executed in strict conformity with these rules, or if injured by folding.

S. S. Fisher,
Commissioner of Patents.

This plan of photographing drawings by the Office has been contemplated for some time, both on the score of economy to the inventors and convenience to the Patent Office, but it has received a quickening impulse from recent legislation in Ohio, Indiana, Illinois, and Iowa, which requires a copy of the patent, including the drawings, to be shown in the office of the clerk of each county in which the patented article is offered for sale.

This is a step in the right direction, and shows wisdom. We have frequently had to bear with imperfect copies of drawings from the Patent Office, but trust that day is now over. Mr. Isaac Rehn, of our city, is one of the chief photographers, and Mr. Henry Howson, our talented *Bromide* counsellor, has invented a pigment of the desired color for the photographer, and to suit the draughtsman.

PHOTOGRAPHY FOR BEGINNERS.

BY PROFESSOR JOHN TOWLER, M.D.

VI.

Intensification, continued.

The instruction already communicated in reference to the preparation of the negative does not terminate here; for there are two distinct kinds of negatives, one from which prints are to be obtained by *contact* with paper, and the other, not by contact, but by the intervention of the camera, either on paper or glass. Such a negative we use for making solar camera enlargements, or glass positives, the requisite qualities of the negatives being the same for both these kinds of work. The ordinary negative does not possess these qualities.

I will, therefore, first describe what the peculiar properties of such a negative are, and then how to make one.

In the first place, the film of collodion must be very thin and structureless, as it is sometimes termed; that is, the surface, when dry, must be perfectly smooth and free from lines, corrugations, and a species of network produced when the collodion is thick. As a general rule, five grains of pyroxyline to the ounce of the mixture of ether and alcohol will be quite abundant; less than this will generally suffice. Furthermore, I prefer using a mixture of ether and alcohol, in which the former predominates in the ratio of five ounces of ether to four of alcohol. This excess of ether, it is true, has a tendency to give a sort of structure, or at least to lessen the pulverulent form of the film, but it makes the collodion thinner and flow more easily; and if the plate be covered quickly with the collodion, and all excess of the latter be also quickly allowed to drain off, there will be no danger of producing an uneven surface on the film whilst it is setting. Secondly, the development must be stopped as soon as all detail has been obtained, and before the shades begin to thicken by any extra deposit. Consequently, intensification is altogether unnecessary. But the most important condition is to get full and complete detail everywhere, and to preserve the deepest shadows from being opaque. The rule I follow is this: I hold the negative up, and see if I can discern the foliage on trees, or the picture of a negative on the window-frame through the deepest shade. If I cannot do this, the negative is too opaque for the purpose.

Now, beginners are apt to get the idea, that such a negative is a sort of ambrotype, or glass positive by reflection, and is easily prepared by giving a short exposure and development. As regards the length of the exposure, this idea is quite erroneous. On the contrary, the exposure must be longer than for an ordinary negative, in order that all the detail can be brought out easily and before the shades become too opaque. The nitrogelatine developer, containing two or three minims more of the nitrogelatine per ounce of developer than is ordinarily used for common work, will produce an excellent result with the proper exposure. The development must, in all cases, be cut short before any fogging sets in. The moment the picture is all out, throw off the developer, wash the film and fix the picture. There is but little fear of the negative being too thin; but the tendency is to make it too thick or opaque. If, however, it is too thin, you can then resort to a gentle intensification by adding a drop or two of the silver solution to the developer, or by flowing over the wet film a dilute solution of iodine. Wash the negative well and dry it. The negative is next to worthless if it is full either of pin-holes or dark particles. To avoid both, dilute the bath by the addition of four ounces of distilled water, filter and then dissolve in it three drachms of nitrate of silver. Filter also the developer, and use filtered water (free from dust) for washing the negative.

It is not advisable to varnish negatives which are intended for the production of enlarged prints, unless you can obtain a very fine sort of varnish, which is entirely free from particles of every kind, for every particle, when magnified, is a blemish on the print.

TRANSPARENT POSITIVES.

Transparent positives are required principally as transparent stereographs; also for exhibitions with the magic lantern or stereopticon, and for the decoration of windows with true pictures of natural objects on glass. Such pictures are the finest that can be made by photography, especially when carefully colored; but they require much care in their preparation, and depend essentially upon the goodness and accuracy of the negative for their goodness and accuracy. It is impossible to produce from a poor and imperfect negative anything but a poor and imperfect positive, however the focussing may be varied; therefore, it will be seen at once, how essential it is to make in the first place your negative as sharp and perfect as possible. It is for such work as this that a long-focus lens has a very great advantage over a lens of short focus, as may be seen by making an absolute experiment. Let us take, for instance, two pictures of the same size, of the same object, one with a lens of which the principal focus is three inches, and that of the other ten inches; let the picture be a square of three inches. Focus with the same amount of accuracy with either lens. On examination with a magnifying glass it will be observed distinctly, that the negative taken with the lens of long focus, is much more uniformly sharp from centre to side, than the one taken with the other lens. This property is easily demonstrated mathematically. Hence it is, that we recommend that the negative, intended for solar enlargements, or for copying, shall always be taken with a lens whose focus is as long as compatible with the working distance of the object. Provided with such a negative, our next operation is to copy it into a positive, either on glass or on paper. Exclude all outside parts of the negative which are not sharp, either by reducing the size of the negative or by covering the parts with a matt. To take copies from negatives on glass there are two methods, one by contact, as it is called, and the other by means of a copying camera, or a solar camera.

COPYING BY CONTACT.

For this purpose you must prepare a number of sensitive dry-plates, by any of the well-known dry-plate processes. Clean the plates, in the first place, thoroughly, then coat them with a film of dilute albumen, as previously recommended, and, when dry, coat them with a good collodion and sensitize in the usual manner. When the color is of a cream white, take each plate out and wash it thoroughly, either in rain or distilled water, and when still wet flow over the film some of the following solution of gum, sugar, and gallic acid, the mixture being that recommended by Russell Manners Gordon, which is about as simple and effective a preservative as can well be made:

FIRST SOLUTION.

Gum Arabic,	20 grains.
Sugar Candy,	5 grains.
Water,	2 drachms.

SECOND SOLUTION (with the aid of heat).

Gallic Acid,	3 grains.
Water,	6 drachms.

Mix the two solutions together and filter through cotton or sponge. Cover each well-washed plate with this mixture carefully and completely, and then rear the plate, after draining, away to dry, in the dark-room, of course. For copying by contact the negatives must be varnished with the finest varnish possible.

Now, in order to get a copy of the negative on the prepared dry-plate, place the former in the printing-frame in the usual way, as you would for paper, that is, with the film-side upwards, and upon this lay the dry-plate, so that the two films are in intimate contact; but be careful not to rub the plates together, otherwise the upper film might be injured. Cover the latter plate with a black cloth, and then press down the spring back in its place. Cover up the front of the printing-frame until you have carried the latter to an open door, or window, where the exposure can be made. The cover is now removed for about four seconds, either more or less, according to circumstances, and then replaced. This exposure will be about right. The plate is now carried back into the dark-room and developed. The film is first made uniformly wet, and then the nitrogelatine developer is poured upon, so as to cover it; this quantity is then poured back into a vial, and two drops of the silver solution from the bath are added to it. This mixture now is the developer proper; cover the plate with it, and watch the development. The picture will gradually appear. The shades of the picture can be increased in opacity by adding more silver to the developer every now and then, until the intensity is as great as required. Wash and fix in the usual way. The tone of the positive is made very agreeable by means first of an acid solution of bichloride of mercury, and afterwards by a solution of bichloride of gold. Be careful not to tone too far. There are several other ways of toning glass positives. Wash again and dry. Afterwards varnish the positive. This method is very expeditious and accurate on flat glass, but not on ordinary uneven glass.

(To be continued.)

CLIPPINGS FROM THE JOURNAL OF A PHOTOGRAPHER.

It is my habit at the close of each day to record anything of interest that occurs in my practice, and I propose to send you a few notes therefrom occasionally.

Monday.—During the interims of business for a few days past, I have been reading *Photographic Mosaics* for 1869. I find it an exceedingly interesting and useful book. It is written as tersely as possible, stating facts in a truly scientific manner. It is certainly praiseworthy to the compilers to compress so much useful matter in so small a space, and I am sure the photographers will not feel less grateful for finding it in the market at such an exceedingly low price. Any photographer who is desirous of keeping up with the times, who takes a pride in his profession, who wishes to establish a literature which will compare favorably with the literature of other arts and professions, should encourage heartily every effort made in this direction, especially when he is enabled to do it at so small a cost.

Tuesday Eve.—In making some negatives this morning, I was surprised to find them so much better than usual, but before night they fell below the common average, the developer indicating too much alcohol and ether in the bath. I have often noticed that the best negatives I ever made were just prior to the bath giving signs of impurity, and hence have sometimes thought that a certain amount of organic matter was rather beneficial than otherwise. I have, therefore, occasionally, when I found a new bath indisposed to work good, added a quantity of iodized collodion to it, which after agitation and filtering was found to work successfully. My usual mode of keeping the bath in good working order, is to have always on hand an abundance of water that has been purified by adding ten grains of silver to every ounce of water, and exposing it to sunlight. In this way I am freed from all trouble so far as the water is concerned. To be sure that the silver added to this to make up the essential strength for sensitizing, be free from impurity, I expose it again to sunlight for a day or so, then add a few grains iodide of potass., and after agitating and filtering, acidify it with C. P. nitric acid; I then use it until it ceases to work well. When this happens, it is replaced by another, which is always on hand for meeting such contingencies. I then take the old bath, double its volume with water, neutralize it with carbonate of soda, evaporate it until it reaches sixty or eighty grains to the ounce, filter when cool, and add sufficient of the ten grains silver-water, which has been exposed to the light, to reduce it to forty-five; sun it for a day or two, and it is then ready for use again by simply adding five grains of iodide of potass. and agitating it before filtering, and acidifying it after with C. P. nitric acid. This mode of manipulating I have repeated times without number, and in no case failed when I used an excess of carbonate while evaporating. Thus I seldom have an occasion to make up an entirely new bath.

G.

New York.

(To be continued.)

COMETS AND THEIR CAUSE.

BY B. W. KILBURN.

Mr. B. W. Kilburn, Littleton, N. H., one of our most able landscape photographers, has sent us a plan for the eradication of an interesting but troublesome little luminary, that very frequently mars the beauty of the photographic heavens, which will be gratefully received. He has no doubt traced the cause to the true source, which may be proven effectually by trying the experiment of producing them. He writes as follows:

With me, comets were a source of great annoyance for a long time, but they appeared almost always under similar circumstances. I looked for the cause in my chemicals, but without success. I finally found the cause in my glass and dust-brush. In certain states of the atmosphere, there are minute globules of moisture deposited on the glass, and in the brush, and when the brush is used, it makes a marking on the glass resembling a comet. This mark in extreme cases can be seen faintly, resembling ground glass, but not always to be discovered with the naked eye.

The remedy is made plain by the cause, and is effectual with me always. Re-clean your glass with alcohol and a clean piece of cotton flannel; then thoroughly dry your brush, or when this cannot be done, dry your glass in the sun before touching it with the brush. This being done carefully, one great cause of comets will be effectually removed.

Heretofore I have supposed that comets were always produced by dust on the plate, or some foreign substance in the collodion. This I *know* is not *always* the case by any manner of means.

NEWTON'S TONING BATH.

We have received from Mr. H. J. Newton, New York, some exquisite stereographs of scenery along the Pennsylvania Central Railroad (a road that is lined on both sides with scenery glorious and grand enough to make it the resort of photographers and their cameras), from dry-plates, and toned by his new toning process.

The tones are bright in color, varying from warm purple to warm brown, of exceeding richness and brilliancy, and all one could possibly desire. Mr. Newton claims that his bath is easy, rapid, keeps well, and of the results there can be no mistake. He generously gives us the details of his method as follows:

"Agreeably to promise, I send you the formula for producing those tones which you so much admired when I last saw you in this city. First, make a saturated solution of borax in hot water; second, dissolve one ounce of tungstate of soda in sixteen ounces of water; stock-bottle third, mix the contents of No. 1 and 2, in equal parts; with this make your gold solution slightly alkaline, an hour or two before wanted for use. A toning bath thus prepared gives tones more satisfactory to me than any I have ever used, and I have tried almost every published formula for toning. The tones are different from any that I have been able to produce with any other bath. With the ordinary amount of toning a warm purple is attained, very clear and brilliant, without any tendency to mealiness. If the toning is carried further, a soft pearly lavender tint is produced, combining with the purple, but not superseding it. A very beautiful warm brown tone, with a tinge of purple, is produced with this bath by toning less than ordinary; the prints for such toning should not be printed as deep as usual."

If the tones are too purple, add more borax, until the purple is dark enough to suit the taste.

H. J. Newton.

New York, July 18th, 1869.

CUTTINGS OF FIXED PRINTS WORTH SAVING.

Photographers generally think that "cuttings of prints previously toned and fixed contain so little silver as scarcely to repay the trouble of collecting." This is true for cuttings of vignette-prints, but for the plain ones it is a mistake which has been the cause of great loss to many of your readers, for nearly all the treatises on photography (even Hardwich's) affirm that they do not contain enough silver to pay for their saving.

To correct such an error, and to give an idea of what is lost, I have saved my cuttings of fixed prints, for about six months. The ashes weighed 13 lbs. avoirdupois. I fused them, and here is the result:

Gold and silver collected:		
27½ pennyw. gold, at 1.35 currency,		$37.12½
12¾ ozs. troy silver, at 1.75 "		22.31¼
		$59.43¾
Expenses of collection:		
7 Crucibles, at 60 cts.,	$4.20	
35 lbs. bicarbonate soda, at 9 cts.,	3.15	
14 bushels coke, at 10 cts.,	1.40	8.75
Profits,		$50.58¾

P. C. Duchochois.

New York.

THE SHAW AND WILCOX IMPOSITION.

Mr. Editor: The following is a record of my experience with the Shaw and Wilcox Company, which I desire you should publish for the good of, and as a warning to, the Photographic fraternity:

An agent of the Company came here, and wished me to take their apparatus. I said he could send me one, and I would agree to send all my waste to them, so long as I was satisfied with the returns, and would make no other agreement. At the same time I had a lot of waste on hand, which we got together, and sent on to Bridgeport, and in due time I received the returns, which were quite satisfactory to me, with the exception, that they retained $12.50, as they said, for one half a share of their stock. I immediately sent them a letter, saying that I had not made agreement for any of the stock, and did not wish any, and that they would please send the amount to me, either in cash, or nitrate of silver. I waited for a month or so, and receiving no reply, sent a second letter, in about the same terms. I heard nothing from them, and have received no apparatus, nor do I wish to, nor would I receive it if it should come. I am glad I got "stuck" no worse. I see you denounced them at Boston.

Truly yours,
C. C. Sherwood,
Peekskill, N. Y.

WRINKLES AND DODGES.

M. De Constant is exciting the craft the other side of the great alkaline bath, with his "*New Discovery*," that fuming the collodio-chloride film is a valuable improvement. The process has been well known here, for at least two years, and was first recommended, we understand, by Mr. W. J. Kuhns, of Brooklyn.

Air-bubbles in toning. After prints are toned, sometimes spots appear upon them that resemble grease-spots. These are caused by air-bubbles in the toning-bath, which bubbles occur from placing too many prints in the bath at once, or from want of care to keep the prints from adhering to each other while toning. Remember.

The Diamond Thief. Look out for him. He is going about trying to sell the "Imitation Porcelain Process." He came into my rooms, and I told him I was posted, and handed him the *Philadelphia Photographer*. So he left, taking my diamond with him. Don't know his name. He is small, has red hair and a freckled face. Look out for him.

P. Hawk, Hamilton, O.

To produce caricature photographs, place a convex mirror in front of the model, and point the lens at this through a hole cut in the background. Various effects may be secured by altering the angle at which the mirror is placed, or substituting for it a long, egg-shaped concave mirror, placed lengthways or the reverse. The idea will take, as it will produce much fun. *M. Linde, in Photo. Archiv.*

I use for touching out transparent spots in negatives, and black spots in prints, the *enamel* taken from *visiting* and *business* cards. This style of card being very much used, the operator will not have much trouble and no expense for material. First, moisten the pencil *brush* with water, and with the brush dissolve off some of the enamel, and stop out the spots. I find it fine for giving (which is sometimes needed) good high-lights to the pupil of the eye, etc., etc.

J. H. Hallenbeck.

I want to give my co-laborers a chance to test and report their success with my formula for collodion, which is as follows:

Alcohol, ...	11 ounces.
Iodide of ammonium, .	88 grains.
Iodide of cadmium, .	44 "
Bromide of cadmium, .	22 "
Chloride of magnesium, .	22 "
Pyroxyline (Parys'), .	100 "
Concentrated ether, . .	10 ounces.

I compound in the order of the formula, taking care to have all the salts dissolved before adding the cotton. In practice, I find this formula to make a rapid and highly stable collodion. I use a 40-grain neutral bath and ammonia iron developer.

A good negative varnish may be made as follows, and much cheaper than that furnished by stockdealers, viz., a solution of benzoin gum in alcohol, of sufficient density to give a smooth, even coat, mixed with a like solution of colored shellac, in proportion of $\frac{1}{3}$ to $\frac{1}{2}$ shellac to 1 of benzoin. Try the varnish; try the collodion.

F. M. Spencer,
Mansfield, Penna.

In the July number of the *Photographer* you answer my question in regard to the intense streaks on negatives, and as I concluded that I had solved the matter before your answer came, and my conclusion being different from yours, I will give you my conclusion. My bath was quite strong at the time, say 55 grains silver to the ounce water; and after exposure in the camera, there was, of course, a quantity of nitrate of silver that would be carried forward to the opposite end of the plate from which the developer was flowed on, and which did not mix fully with the developer, and which would flow across the plate when the developer was poured off the plate, at the same corner that it was poured on, and had just the same effect as pouring a strong solution (50 grains) of nitrate of silver on to a plate which had been developed, but not washed; when I found the strength of my bath, and reduced it to 40 grains, I had no more trouble.

A. D. Wiles,
Fremont, O.

THE BOSTON PHOTOGRAPHIC ASSOCIATION.

The minutes of the closing meeting of the Boston Photographic Association were received from the secretary too late for our last issue.* As there were several little items of interest in his report, we shall condense it, for the benefit of our readers, hoping that hereafter all secretaries will give heed to our foot-note below:

A special meeting was held at the photograph studio of J. W. Black, Esq., 173 Washington Street, June 22d, 1869.

The meeting was called to order by the President, after which the records of the last meeting were read and accepted.

The President introduced Mr. George Lyman, who represents Mr. George W. Lovejoy, of Stepney Depot, Conn., who has been sued by the Shaw and Wilcox Company for supposed infringement of their patent rights in saving silver and gold from his solutions and wastes.

Mr. Lyman stated the case and explained what the Shaw and Wilcox Company claimed, among which was *the saving of silver and gold from* PHOTOGRAPHIC SOLUTIONS, *by whatever means employed.* The patent dates in 1860.

Mr. Lyman wished information from any photographer *who saved silver from his solutions* previous to that year, and to know whether said artist did it openly or kept his method secret, as it will be necessary to prove that silver was saved from photographic solutions, in a public or open manner, previous to that date, to break the Shaw and Wilcox claim.

This company is a wealthy and powerful company, and Mr. Lovejoy needs all the assistance that he can obtain to defend himself from what we all consider an outrageous claim.

Mr. Southworth stated that he saved gold and silver from photographic solutions when he was in company with Mr. Hawes as long ago as 1854, but it was not done in a public manner.

The President, Mr. Loomis, gave his experience with the "Shaw" silver saving apparatus. Considered it more of a curse to him than a benefit.

Mr. T. R. Burnham also told his experience, which was very much like the last gentleman's. He now flows all his washings, but hypo, through a hogshead buried in the ground, and finds that it pays.

To wind up with, Mr. B. thought our meetings were for the benefit of each and every member, and he did not know how he could better do his part than by calling the attention of this Society to a man by the name of Samuel S. Miles, who finishes pictures at No. 32 Winter Street, who is a *swindler*, having swindled him out of quite a little bill, and he had just heard that he had also done the same thing to his friend on his right (Mr. J. J. Hawes) out of a still larger amount.

He had no doubt but that this same party had swindled other photographers in this city, and would try to others.

He mentioned it, that such might be on their guard.

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* It will not be out of place to say here, as Societies are now organizing all over the country, that to *secure* insertion, reports should be in our hands by the 18th of the month, and much earlier if possible. After our matter is all in type, several days are consumed in printing and binding. Matter received after the 18th is perfectly sure to be too late.—Ed.

Mr. Loomis gave a very humorous account of how this same person had swindled him out of $21.

Mr. Wing said he had been swindled by him out of $20.

On motion of Mr. Low it was voted that members of this Association or others wishing information upon any subject connected with photography, or wishing to present any questions for discussion in our meetings, may do so by transmitting them in writing to the secretary.

Mr. Black suggested for a subject for discussion at our next meeting, "How to treat the Negative Bath to produce the best results."

Mr. Black announced that he had received from Mr. J. A. Whipple the sum of fifty dollars, which was given for the benefit of this Society.

On motion of Mr. Black it was voted that the thanks of this Society be extended to Mr. J. A. Whipple for his donation, and that the secretary transmit to him a copy of this vote.

Mr. L. J. Marcy, of Newport, R. I., gave us an interesting exhibition of his oil-burning magic lantern, and also his apparatus for making transparencies with an artificial light.

The regular monthly meeting of the Boston Photographic Association was held at the same place as our former meetings, on the evening of July 6th, 1869.

On motion of Mr. Black, it was voted that when we adjourn it be to the first Tuesday of September next.

Mr. Black also announced that he had received from Mr. David Sears, Jr., an amateur photographer, the sum of $25, as a present to our Society.

And on motion it was voted that the thanks of this Association be tendered to Mr. Sears, through our President, for his gift, and that he be an Honorary Member of this Association.

The secretary stated that there seemed to be a misunderstanding as to what Mr. Southworth said, at our last meeting, about his saving gold and silver from his solutions as long ago as 1854.

He had understood from Mr. Lyman, who represented Mr. Lovejoy, of Stepney Depot, Conn., that he did not consider the information he had obtained, of any value in this lawsuit, as Mr. Southworth saved his gold and silver from his solutions and wastes in a private manner, or at least not publicly.

Mr. Southworth then stated that this was a mistake, as he never had had any secrets in his business. That whatever formula or methods used in his establishment, were open to all his employees and others.

Mr. Black stated that he had saved the silver and gold from his solutions ever since photographs had been made in his establishment.

The subject for discussion for this evening, "How to treat the Negative Bath, to produce the best results," was then taken up.

Mr. H. W. Tupper read a short essay on the subject, which was quite interesting and instructive, followed by remarks by Mr. Wing on the Positive Bath.

Mr. Low said that sometimes he filled his bath dishes too full, so that they would run over on plunging a plate. He found a small glass tube, about 10 inches long, cut off square at the ends, and about $\frac{3}{8}$ths or half inch bore, the handiest thing to take out the superabundant solution with. He plunged his tube into the solution, then placing his thumb tightly upon the end of it, took out all the solution he wished. He had never seen it used before. Some used a little syringe, others a syphon; this seemed the simplest.

He used glass baths without lips, and finds that by having a little tallow upon a shelf handy, where he can grease his forefinger and then run it around the outside end of the bath, where the solution usually follows down the end of the bath, that no solution will follow down and be spilled.

By taking this precaution a solution could be poured from a bath without a lip, into a 5-pound ether bottle, without spilling any of the solution; before adopting it, he used to place his bottles to hold the solution in porcelain pans, so as to catch the solution that would be spilled.

A letter was read from Mr. T. R. Burnham regretting his absence, but he was responding to an invitation to attend an excursion of photographers, at Portland, Maine. He gave his method of treating his negative bath, viz.:

"I work a 26 quart bath of plain water, and from 40 to 45 grains silver to the ounce. Boil one half of it down once a month; filter when necessary.

"I made this bath or its father in 1866, and was the first to boil down of any one that I knew of then. Did it at that time in an iron porcelain kettle.

"When my bath gets sick, I give it silver, water, soda, acid, and sun, in quantities to fix it."

Mr. Black suggested as a subject for discussion at next meeting, "Collodion."

On motion of Mr. Foss, it was voted to adjourn.

Frederick C. Low,
Secretary.

RESOLUTIONS

Concerning the Sliding Plate-Holder Patent.

Whereas, The Photographic fraternity has been deemed by sharpers and bogus patent vendors suitable subjects on which to practise their nefarious calling, and whereas, since the great Bromide swindle was imposed on them and thousands of dollars extorted from them under the threats of prosecutions for that base, worthless, and illegally obtained patent; and whereas, the owners of the Sliding Plate-holder Patent, stimulated by the success of that swindle, have been trying to imitate their example; and whereas, this Sliding Plate-holder Patent has just been declared invalid and worthless by the United States Circuit Court of New York; therefore be it

Resolved, That the Photographers in the United States owe a debt of gratitude to C. C. Schoonmaker, of Troy, New York, for the indefatigable perseverance and exertions with which he has fought and conquered this worthless humbug, and that we advise and recommend to the photographers throughout the country to get together and give suitable expression to their sentiments and condemnation to this imposition on the fraternity, and encouragement to those who, like Mr. Schoonmaker, shall have the manhood to stand up and battle these impositions until the fraternity is freed from their viperous forms.

Resolved, That we have entire confidence in the manner he has conducted this case; and as he has done it at his own expense, we feel that the photographers ought and will contribute something—no matter how little—to make good, in part, the expense, and that we will pay the amounts set opposite our names, and we urge others to do as much; and that L. C. Everett, of Troy, be appointed custodian of whatever funds the photographers may see fit to send him, and which he will duly acknowledge, and see that Mr. Schoonmaker gets the same.

Resolved, That in urging this matter to the attention of the photographers, we can assure them that we know of the great amount of labor that has been done in collecting and arranging the evidence and engineering this case through to so successful a termination, and that the decision not only kills the old patent, but as effectually kills the extension, which has seven years yet to run.

Resolved, That these proceedings be attested by our President and Secretary, and published in the *Philadelphia Photographer*.

Arthur Caliden, . . .	$10 00
Charles Burgess, . . .	10 00
George S. Fox, . . .	5 00
W. O. Carpenter, . . .	5 00
C. R. Clark, ...	5 00
L. C. Everett, . . .	10 00

L. C. Everett,
President of Troy Photo. Asso.
W. O. Carpenter,
Secretary.

SALAD

For the Photographer.

Business is looking up splendidly.

"Fettered (patented) processes" bother our English brethren.

Photographs decided another lawsuit in England recently.

Join the National Photographic Association.

Collodion bottles burst in hot weather. Take care.

Members of the *National*, send your dues to the Treasurer, please, and not to us.

The sliding-plate-holder-patent-imposition-mistake is virtually deceased.

The Photographers going to the North Pole will use Dry-Plates.

Albert prints one thousand impressions from one of his plates.

Prints on glass and paper by Woodbury's process are exquisite.

"Rembrandt Effects," are very popular. Raise prices.

"How fur you going to put me in?" said a hopeful youth of Ohio, to his photographer.

An English "artist" knocked his customer down because he wouldn't pay too much for a photograph.

"Ewing's Photographic Circular," has grown to "The Canadian Journal of Photography."—Toronto.

"Why is a Photographer like a Botanist? Ans. Because he makes the different kinds of Poses (Posies) a study."

"It's useless to try to beat a Photographer in an argument, because he is sure to take the *negative*, and produce a *positive proof.*"

"With Photographers as well as *others*, good *development* depends somewhat on the amount of *cotton* used." "*Topog.*"

"Why should Photographers excel in the game of chess? Because they are well posted in all the different *moves.*" *John.*

If "ignorance is bliss," how happy the "hero" of the following incident:

A short time since, as I happened to be in my gallery one evening, just after dark, a young man came in and asked how much I charged "to take likenesses;" and after an examination of the different styles and prices, "allowed" that the gems were what he wanted.

His next inquiry was: "Will I have to be yer when they are took?" And upon receiving an affirmative reply, he turned to a boy, who came with him, and informed him that "he allowed to come back to-morrow night, and get them took."

The boy, however, informed him that he would have to come in the daytime. But he doubted the lad's knowledge, and it was necessary for me to confirm the statement, as I am not in possession of Proctor's patent, or other arrangements for night-work.

So the youth came "in the daytime," and had his pictures made, and while I was finishing them a friend of mine hinted to him that "he suspected that some of the opposite sex would eventually get those pictures." He was quite indignant at my friend's presumption, and informed him, "that he didn't *know any folks by that name.*" Also informing him, "that he was from Noth Car'lina, and that his kinsfolks all lived out thar, and that was whar his likenesses was goin' to." J. H. S.

Mt. Sterling, Illinois.

Having been amused by your "Salad," I offer this to, perhaps, amuse others. One day, when operating in a city of Brazil, a countryman came in, and wanted a picture of himself. When told the price, "two millreis," he said: "As I don't want a full-length figure, only a half length, can't you do it for one millreis?" This we declined; but he continued to importune until my partner conceived the idea of having some fun with the fellow by a play on the term half-length; so he said, "Give me your millreis, and I will take you a half-length;" and thereupon arranged him standing, and took a card melainotype from his waistband *down.*

The look of stupid amazement with which he at first gazed at the picture of his not very elegant boots and unmentionables, and the spluttering anger in which he sought to explain that it was from the middle *up*, not *down*, that he wanted, kept the room in a roar for about half an hour, until he finally cooled off, and accepted our view of the contract, a half-length, *which half* not designated, and we chose what we thought the most favorable view of him; but, if he preferred the *other half*, he could have it by paying *another* "millreis," which he finally did, and left in tolerable good humor, but calling us "diabas Americanos." E. K. H.

In 1863 a German, from this neighborhood, enlisted, and was mustered into a cavalry company, to "go mit de war." He was donned in Uncle Sam's best blue suit, and sent to camp, where he lay some time waiting to be supplied with a horse and other accoutrements. While so waiting, he thought it would be nice to have a picture taken, and send it to his "frau." The idea was put into execution, and in a short time the "frau" was in receipt of a full-length *plate*-picture of her husband, with a letter stating, that he had not, as yet, been supplied with a horse.

A few weeks later he wrote her another letter, apprising her of the fact that he now had his horse, and would soon leave for active duty. She now looked at the picture, and came to the conclusion that it was incomplete, as she imagined him astride his steed. To remedy the defect, she brought the picture to my gallery, and related the circumstances, and asked me "whether I could not take a picture of a horse, and put it under him, and make him look as though he were riding?"

Not being familiar with *Mumler's spirit photographs*, at that time, I told her that I thought it could not be done. J.

A correspondent of the *British Journal* has been to church, and heard the following analogy between Photography and Saving Grace: "As is hacid in the world of matter, so is grace in the world of mind. The photographist takes the glass plate, that is your heart; he cleans the dirt off, that is sin. If there is an old picture on it, he removes it by hacids; so must you remove the old Adam by grace. Well, when the plate is clean it is ready for receiving the new picture, but it must first be made sensitive by the use of hacids, that is, quickening grace; he then puts it into a cam'ra-box—that means your closet—meditation and prayer; then he lets the light in through a glass upon the plate, that is the Word, 'we see through a glass darkly.' He must again put the plate in hacids to develop the picture; in like manner the Christian character is developed, that is made visible by grace. Last of all, the picture is fixed with hacids; so with the believer, who is fixed and kept firm and steadfast in his faith by the hacid of restraining grace. When the photographist's work is done, he expects his reward; so when a believer's work is done, he also gets *his* reward. But without hacids the photographist cannot take the portrait. Hacid! hacid! must be his cry; hacid, hacid, is his Halpha and Homega. So with a believer, whose battle-cry must be Grace! grace!" Our clerical brother has the number of manipulations right, but it would take much grace to work the chemicals as he has mixed them, and make harmony. Another thing, we take our reward (pay) *in advance* in this country, or *before the* "hacid" is applied.

"The Holyoake Card Mounts.—In the last issue of our American contemporary, the *Philadelphia Photographer*, Wilson, Hood & Co., of Philadelphia, insert the following advertisement: '*The Holyoake Card Mounts.*—We now have stones ready, and are prepared to furnish the *New Holyoake Card Mounts* in any quantity.' Isn't it odd that no English firm has thought it worth while to manufacture these cheap, simple, effective, and novel mounts!"—*Ill'd Photo.*

Our American business houses are always quick at getting up anything that will tend to beautify the productions of their customers, and tend to increase the price for pictures, as do the Holyoake Cards.

Photography in Court.—A very interesting case was decided in our United States courts a few weeks ago by photography. It was a case of the United States against certain whisky distillers for defrauding the revenue. The defence occupied judge, counsel, and jury for five days examining witnesses to prove that the stills and other apparatus were not in a position to make the fraud charged possible. The defence closing, the other side produced, for the examination of judge and jury, as their evidence, a package of photographs of the whole interior of the distillery in question, proving the perjury of the witnesses examined for five days back, the fact of the fraud being carried on as charged, and settled the whole case in a few moments, the jury deciding on the side of the photographs!

Artistic knowledge is essential to the photographer. It is not only well to do right, but to *know* you are doing right. To the instructive eye each line, and light, and shadow, plays its definite part in forming a perfect composition. Composition in art consists in selecting, arranging, and combining in a picture the objects to be delineated, so as to present an agreeable appearance, and its grand principles are unity, balance, and the adaptability of the whole to breadth of light and shade, by which the principal object in a picture—for instance, the head in a portrait—is brought forward most prominently, yet so united with the other parts that the eye may first see the point of chief interest, and be gradually led over the other parts of the picture.

The *News* complains of a decline in photographic book illustration, and declares that prints used for that purpose now, are far behind the standard of the day. This should not be so. Every book illustrated by photography is an advertisement of our art, which we desire to elevate and popularize, and the greatest care should be taken to produce perfect work for such uses.

A Paris photographer has made an excellent picture for a peasant woman of her deceased son by merely having the clothes of the deceased brought to his studio.

Editor's Table.

Answers to Correspondents.

E. G.—Waltham.—Your paper has evidently been exposed to the light in some way before printing, or before toning after printing.

Subscriber.—Don't know. Never "been there." Do you know?

From Mr. William O'Connor, Toronto, we are glad to hear that their Society there grows and that harmony in feeling *and in prices* prevails.

A South American subscriber says two volumes of our Journal cost him $23.50, but he cannot do without it, even at that. He says it is good.

Our friend Mr. David Bendann is expected home from Europe soon, where he has been for three months among the photographic trade. He promises to give us an account of his journeyings.

A correspondent, whose address we will give to any wishing it, desires to caution photographers against a German who gets up photographic advertising albums, and who is a swindler.

The "Massachusetts Charitable Mechanic Association" holds its eleventh exhibition of American Manufactures at Faneuil and Quincy Halls, Boston, beginning Sept. 15th. The judges of the Photographic Branch are Messrs. B. P. Shillaber, Alfred A. Childs, John Howarth, H. D. Morse, H. E. Maynard, and Edward L. Wilson.

Dues of the members of the National Photographic Association are payable to Mr. H. T. Anthony, 591 Broadway, N. Y., only, and not to us. They are now due, and prompt payment is desirable. Please do not forget—*now*.

A novel scene is enacted at the gallery of Mr. E. K. Trask, N. 8th St., Phila. He has an enlargement on Mr. Proctor's night apparatus, where he nightly makes pictures quite equal to those made in daytime. Returning home from our sanctum labors one evening lately at 10.45, we had a picture made by Mr. Trask fully up to day-work.

Our pictures this month were printed by Messrs. Schreiber & Son, 818 Arch St., Philadelphia, in an incredibly short time—*i. e.*, since our return from the eclipse trip. They are on the German albumen paper, for which Mr. Willy Wallach, 43 John St., N. Y., is manufacturer's agent. This paper we can recommend as first class. We have watched its working with the Messrs. Schreiber during the printing of these pictures, and although the weather is the hottest we have had this season, the paper absolutely gave them no trouble.

Its other good qualities will show up in the prints. Another picture on it soon.

A very interesting base ball match took place at Harlem on Saturday, July 31st, between nine representing the business firms of Jordan & Co., photographers, and the Scovill Manufacturing Company. At the end of the ninth inning the score stood 40 to 25 in favor of the Scovill Manufacturing Company. Mr. F. McCanless, of the Harlem Club, acted as umpire. After the game both nines, with their friends, participated in a collation. Arrangements are being made for a return game.

"Our National Game" pervades photography as well as other trades, and we are glad to see it. We have a very graphic account of the game from one of the winners, which we regret to have to crowd out.

THE employees of E. & H. T. Anthony & Co., and those of J. Gurney & Son, had a race in double scull working boats on Saturday, July 31st, over the three mile course of the Hudson River Rowing Association. Each house started three boats, the first two from either house to win the race. After a closely contested and exciting race, the prize, a beautiful silk flag, was won by the Anthony crew. A large number of friends witnessed the contest, and after it had been decided, all partook of the collation which had been furnished, and every one present expressed himself as being highly pleased with the manner in which it had been conducted. The presentation speech was made by Captain Ed. White in behalf of the Gurney crew, and neatly responded to by Mr. Percy A. McGeorge for the Anthony crew.

The members of both crews wish to return thanks to Com. W. H. Cornet, of the Ione Yacht Club, for the use of his beautiful yacht, and the impartial manner in which he acted as judge, on the memorable occasion.

FROM Mr. Wellington Watson, Detroit, Mich., we have several cartes which show artistic taste in posing and lighting and careful manipulation. Mr. Watson is one of our most enthusiastic and promising artists.

WE have also the following:

From Mr. E. Herbruger, Sr., Antique, Guatemala, several interesting stereos of that locality.

From Mr. W. E. Bowman, Ottawa, Ill., stereo groups of picnic and excursion parties, residences, and of the children at the Soldiers' Orphans' Home, Iowa. Mr. Bowman is specially good in this line. His carte specimens sent are good too.

From Mr. J. R. Gorgas, Madison, Indiana. Views on the Ohio, showing distance sixteen miles away. Made with Zentmayer lenses.

From H. Noss, New Brighton, Pa., some beautiful stereo views of Beaver Valley scenery from dry-plate negatives.

From Mr. H. J. Radbruch, Milwaukee, Wis., some dry-plate views by a process which he has sent us, but which, with many other things, has to lie over until our next.

From F. M. Spencer, Mansfield, Pa., carte and cabinet specimens. Also, views of the eclipse.

From Messrs. John Reid, Paterson, N. J.; Mote & Swain, Richmond, Ind., and Wilt Bros., Franklin, Pa., views of the eclipse, partial phases.

From Halwig & Busey, carte and cabinet specimens, which are really elegant, evincing exquisite taste in posing and lighting. Their work is constantly improving and has a style about it which is rich as well as original. They remove to new quarters soon, to be the finest in Baltimore.

From Mr. F. B. Gage, St. Johnsbury, Vt., some stereos from dry-plates, possessing a great deal of merit. Mr. Gage is continually working upon a process which he has not yet made known, but which he thinks must be fully equal to the wet process in every way.

From Louis Alman, Lake Mahopac, N. Y., a number of stereoscopic gems of children, groups, landscapes, and horses.

From E. G. Henry, Leavenworth, Kansas, a group of the M. E. Conference of Kansas, with seventy-seven portraits therein.

From Leaman & Lee, Reading, Pa., an 8 x 10 portrait after Salomon.

From H. B. Hillyer, Austin, Texas, some interesting stereos of that locality, Mr. Hillyer continually improves, and declares that our Journal is his best teacher. His work is very creditable.

From C. C. Sherwood, Peekskill, N. Y., specimens of portrait work that show him to be painstaking.

From Mr. J. A. Todd, Sacramento, Cal., some work that really surprises us. We get to see very little from the Pacific coast, though our subscribers are thick there. These are certainly very creditable and first-rate specimens in every way.

From H. W. Seward, Utica, N. Y., some photograph views and photographs of machinery, made with a Steinheil lens, which assuredly speak well both for the photographer and the lens.

From F. L. Stuber, Bethlehem, Pa., a number of 8 x 10 prints of the Salomon style, which are truly very meritorious and have a good deal of the charm of the work of the great Master. Mr. Stuber's work certainly promises a bright future of success for him if he continues it so good.

THE

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A WORD ON CLEANLINESS.

BY M. CAREY LEA.

Nothing, it is probable, balks the beginner in photography more frequently than the mishaps that arise from neglect of the precaution of keeping his materials absolutely apart from one another. And even older hands not rarely suffer from the same cause.

It chances that most of the substances which the photographer deals with, are colorless, and make colorless solutions. Such are nitrate of silver, hyposulphite of sodium, cyanide of potassium, bicarbonate of sodium, chloride and acetate of sodium, etc. When these bodies are dissolved in water, such solutions cannot be distinguished from clear water. If emptied from vessels, unless great care be taken in washing, some portion may remain, and prove extremely pernicious in connection with the next use to be made of the vessel.

Especially, drops may adhere to the upper part of the vessel, not reached in a careless, half purification, and so a very appreciable quantity of the previous material may be introduced into the next. The following instance shows this in a very striking way:

Some solution of nitrate of silver was emptied from a vial, and, on a sudden emergency, the vial was to be used to contain some medicine. It was especially directed that the vial should be cleaned by shaking successive portions of water in it. The cleaning was, nevertheless; insufficient, and the patient to whom the medicine was administered, was rendered extremely sick. As the medicine itself had no such tendency, and, as the patient was at once relieved by swallowing table-salt, there could be no doubt that nitrate of silver had been left in the vial, doubtless adhering to the sides above the portion which had been washed.

Where, as in photography, a certain round of technical operations is constantly to be followed, it is a great safeguard to appropriate absolutely certain vessels to a single exclusive use for each, so that the need of cleaning may be reduced to the lowest point, and the danger of doing it insufficiently may be in a great measure got rid of.

A great source of danger lies in using vessels that are not labelled. Colorless solutions in such are always liable to be mistaken for each other, or for pure water. In this last way many lamentable accidents have occurred. Even where no personal injury happens, regrettable losses may result. I once saw a large batch of good prints ruined by being placed in what was supposed to be pure water for washing, but which was in reality contaminated with traces of hypo washing, and turned the prints black.

In cleaning vessels, there are two very effectual methods, mechanical and chemical. A mixture of shot and sand, with a little water, is excellent for cleaning. Bristle brushes, sold under the rather odd name of "sash tools," are very useful, and should be always at hand. In cleaning by chemical means, nothing is comparable with a mixture of bichromate solution and sulphuric acid. In some cases, however, especially where salts of iron are to be removed, *binoxalate of potash* is excellent. And, for removing stains on clothing, especially white, the hypochlorite of sodium, sold under the name of chloride of soda, or "eau de Javelle," is most useful.

Finally, I may remark that the more carefully and observantly that one operates, the more one is led to conclude that time is never lost in careful cleaning, but that, on the contrary, this is the truest and most certain economy.

IS PHOTOGRAPHY A FINE ART?

BY EDWARD SATTERLEE.

In all imitative art there are two elements, distinct, and yet correlative, in producing a complete result, namely, the intellectual and mechanical. The former is a knowledge of what constitutes the grand and beautiful, sanctioned by canons of judgment, familiar to persons who have made the art of design their peculiar study. The other element is purely mechanical, within the reach of most persons, and is the lowest object of the artist.

The representation of external forms by their mechanical properties, has, for a long time, it would seem, claimed the chief attention of photographers, and even at the present day, their *ultima thule* is to produce clear, sharp pictures, with fair distribution of light and shade, by the proper use of chemicals and a good camera. The higher branch of the art, that which would entitle it to rank as a *fine art*, is almost entirely neglected, or, at best, but little understood or practised. Photography so represented, is nothing more than good mechanism, aided by chemistry and natural laws; but it is not until nature, mechanism, and chemistry have done their parts, that the work of the artist commences.

Hitherto, photography has been denied a position within the charmed circle of the liberal arts, on the ground that its field of operation did not extend beyond the limits of mechanical science; but such is not the case, for it embodies, to a certain extent, an element which, if properly carried out, should entitle it to rank as a *fine art*, that is, *design*.

Photography, then, treated as a fine art, and as applied to portraiture, is not merely the production of a clear, sharp image or portrait, with effective lights and shadows, masses of drapery placed in every conceivable form, and relieved by landscape backgrounds, and a host of objects introduced at random, as accessories to make out a picture. Accessories are very serviceable in their proper places, but should be used intelligently as adjuncts to composition, or as a means of balancing the lights and shadows, yet never in such a manner as to become marked features in a portrait; this is a well-established rule, the value of which every artist appreciates.

Unfortunately, very few photographers are *artists*, hence, the production of good portraits is generally the result of chance, manifested by repeated sittings and many failures, although the photographer has used his best efforts, with due care to mechanical execution; whereas, if he worked by well-defined art rules, applicable to every subject placed in his hands, he would perceive at once the difficulties to be encountered and the remedies would readily suggest themselves. Nor should he depend upon accidental arrangements for effect, which seldom occur, but, when occurring, to be recognized as valuable, and seized upon with promptness.

Every portrait is, more or less, a composition, whether in the hands of the painter or photographer, and the same art-rules govern both, except as to color, light and shade, in photography, taking the place of color; in fact, every essential principle of high art may be exhibited in portraiture, and the questions very naturally arise: What are those essential principles? And how are they to be portrayed? We affirm that, in every countenance, there is a general impress of thoughts and feeling, which constitutes the habitual mental likeness of the individual, and, although it may be difficult for the photographer to obtain it from his sitter, owing to his restrained position, and the painful effect of light upon his eyes, yet, with proper suggestions to his sitter, and knowledge of the means to relieve the eye, the difficulties are obviated, or, at least, greatly lessened.

Presuming that the artist has acquired sufficient knowledge in the use of the camera, chemical, and mechanical appliances; the first point for his attention is the *pose* of the figure, and in this the artist should not, as is often the case, create a position, for, although it may be spirited, it may not be natural to the person. Attitude has much to do with the likeness, and, with careful observation, the artist can easily avail himself of a pose, quite in accordance with the habit of the sitter.

A portrait is valued more as a faithful likeness than as a work of art, and, while applying art-rules, the artist, if true to himself and to his sitter, will use his best endeavors towards perfecting the likeness.

The next point for consideration is the adjustment of draperies.

Photographers have just reason to complain of the inappropriateness of the many dresses which appear in their ateliers, particularly those of ladies, who imagine that the most costly and showy dresses and ornaments are required for a good picture. Such dresses are an abomination of the artist, from the fact that color cannot be represented, and, when of light shade with bright ornaments, the picture will be spotty, and lack the repose necessary for harmonious effect; very light dresses, as a general rule, are to be avoided, as also the wearing of large white collars, handkerchiefs, etc. The best French artists, and some of our own, refuse taking portraits in unsuitable dresses, and ladies should understand the reason why.

The best dress for effect, is a black or dark velvet, next to that any dark silk or cloth. Certain shades of purple are objectionable, as they take white or nearly so, in the photograph. As every fold in the drapery produces a line, care should be taken in the adjustment of draperies, to make agreeable and flowing lines, and to avoid repeated lines in the same direction. In full-length and three-quarter portraits, it is of great value to introduce a horizontal or vertical line, which acts as a foil to the many curved lines, and also imparts dignity, firmness and grandeur to the composition.

Titian, whose portraits have never been equalled in their combined excellencies of composition and color, often introduced both horizontal and vertical lines; but in every case, they were so subdued in tone, as in no way to interfere with the head.

An example of this successful introduction of lines, is seen in his celebrated portrait of the Duke d'Urbino, in the Ufizzi Palace, where he has placed his figure standing against a dark crimson screen, the line extending horizontally entirely across the picture, just below the waist, while to relieve this line, several spears and halberds are resting vertically in one corner. Paul Veronese, Van Dyck, and many other masters of art, observed similar arrangements; but to attain these effects it is not always necessary to introduce an object, as the same results can be produced by a sharp line of light and shade.

While adverting to the use of accessories in portraiture, we are reminded of one or two pictures seen in the exhibition room of Mr. W. Kurtz, 872 Broadway. Mr. Kurtz appears to have given considerable study to the rules of art, and has produced pictures of extraordinary merit; among others, we notice a portrait of Mr. John Gilbert, which for its combined merits, is a study that any artist may be proud of, both as indicating personal and intellectual character, the rules of art being carried out in every particular, except perhaps in the lower part of the picture, where too much light falls on the knee, which doubtless the artist did not intend to be represented. Another portrait, of Mr. Theodore Wüst, is not only fine as a composition, but the lights, shadows, and reflections of light in the half tones are admirable.

Mr. Kurtz has given his attention to Rembrandt effects, which are peculiar from the fact that the shadowed side of the face is opposite the camera, and are well adapted to a certain style of head which would not take well in broad light; they are made effective by admirable management of reflections and counter-reflections, which render the half tones and shadows luminous, and in this the skill of the artist is displayed.

The success of Salomon, the French photographer, is greatly owing to his knowledge of art, a sculptor by profession, and well acquainted with the rules and intricacies of art.

He obliges his sitter to wear a costume suitable for a picture, and not only arranges the camera, reflectors and draperies himself, but assumes the position which he deems necessary for the sitter to take. Nearly three-fourths of his pictures are in shadow, the focal light being on the face, and the greatest care is taken in the adjustment of his screens and reflectors, so as to obtain the finest gradations of half tone, and luminous effect in the shadows.

Meissonier, whose cabinet pictures are in some respects unequalled, photographs his subjects before painting them; the principal advantage being the certainty of retaining the pose and local effects, which once decided upon are not altered.

When it is seen how largely art principles are involved, shall we not then dignify photography as a *fine art*,—and, although it cannot be expected to rival in excellence sculpture or painting, yet if measured by the amount of happiness it contributes to the human family, it far excels all the liberal arts, and for this reason alone, it should demand the aid of every means that would tend to advance its interests.

RADBRUCH'S DRY PROCESS.

I SEND you the dry collodion process used by me for over one and a half years with the best success:

COLLODION.

Plain Collodion,	1 ounce.
Equal parts of Alcohol and Ether.	
Iodide of Sodium,	4 grains.
Bromide of Cadmium,	3 "

The Salts dissolved in alcohol, and added to the Collodion.

SECOND.

Ether,	1 ounce.
Gum Resin,	½ "

Dissolve, and add ½ ounce Balsam of Cappavia.

Shake well and put it aside to clear up, which will take about two or three days. To the ounce of collodion add 5 drops of No. 2; shake well and let it stand for about three days. The collodion will then be ready for use.

SILVER BATH.

Nitrate of Silver,	1 ounce.
Distilled Water,	11 ounces.
Nitric Acid,	3 drops.

DEVELOPER.

Sulphate of Iron,	1½ ounces.
Epsom Salts,	1½ "
Water,	32 "
Acetic Acid,	1½ "
Alcohol,	1 "

The negative plates have to be albumenized with about one ounce of albumen to seven ounces of water, else the film will peel off. After the plate has been sensitized, wash it well with the purest water that can be obtained, and put it away to dry. When dry, the plate is ready for use. Expose not longer than wet plates.

I took my negatives with the front lens of a ½ size C. C. Harrison's instrument, with a diaphragm of ⅜-inch diameter, and exposed from 10 to 25 seconds. With wet plates it took the same time.

Before developing, wet the plate with distilled water, and pour over it a solution of—

Water,	1 ounce.
Nitrate of Silver,	20 grains.
Acetic Acid,	10 drops.

Then develop in the usual way. If the exposure is long enough, the image will appear almost immediately, looking very intense. If the shadows do not appear dense enough, wash the plate and redevelop in the same way as before. Fix with a weak solution of cyanide, and examine the negative in the light. *It will keep the same intensity* when dry and varnished as it then has. If not intense enough, wash it very clean and redevelop in the same way as before.

This way of redeveloping I prefer to any other, because it gives the softest picture, especially in the dry process.

By mail I sent you some pictures taken with this process, which is the simplest as well as the easiest that can be had.

Inclosed you will find photographs of the eclipse as seen here, taken with the Steinheil aplanatic lens, and on dry plates.

Hoping that every photographer will give this process a fair trial, and succeed as well as I did, I close these lines with the remark that one drop of No. 1 added to one ounce of any collodion keeps the collodion for a year and longer in good working order. Yours, truly,

H. F. Radbruch.

Milwaukie, Aug. 11, 1869.

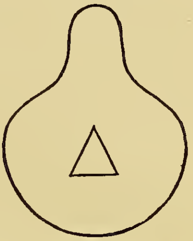
Mr. R.'s prints speak very well for his process.—Ed. P. P.

HOW TO GET CLOUDS IN THE PHOTOGRAPH.

BY PROF. J. TOWLER, M.D.

A very great defect in landscape photography is the want of clouds, which enliven the scene, when present, almost as much as living animals. An exposure, sufficiently long, to impress actinically the green foliage and yellow and orange-colored flowers, would be altogether too long for the beautiful white masses of clouds in the sky. Several expedients have been adopted to remedy this evil. One expedient is, to take two negatives, one for the clouds by an instantaneous exposure, and the other for the landscape by a much more protracted exposure. This mode entails the labor of double-printing and great accuracy in cutting out the blind-mats. With some landscapes this system would be almost impossible. Another plan is, to regulate the influx of light into the camera by means of a folding door in front of or within the camera, something like the door of the Stock camera for the Globe lens. This helps to remedy the evil only partially; besides this, it cuts off the light too abruptly, and is apt to form a line or division where greater intensity takes place. The method which I here present, has been tried very successfully, so much so that it becomes an earnest recommendation to lens makers to supply, with their lenses, a set of diaphragms that assist in producing this good effect.

Instead of having a round aperture in each stop, let it be of a triangular shape, that is, a circumscribed equilateral triangle, with the apex upwards, like the following figure:



It is evident, from the shape of the aperture, that the sky sends through the lens the smallest quantity of light, whilst the landscape transmits the most; the increase of light, too, from above downwards, is gradual, thus producing no harsh line between the sky and the landscape.

Mr. Haines, Albany, has used this plan in his splendid out-door views with great success. A piece of veneering is easily cut out to the desired shape by those who are endowed with a mechanical genius.

PIN-HOLES.

Much has been said about "pin-holes" and the various modes of producing them, but I have observed one not very unfrequent cause of the trouble, that I do not remember to have seen mentioned by any photographic or other publication I have read, which is this: using an alkaline bath with an acid collodion, and, *vice versâ*, causing effervescence to take place in the film. I have seen these markings cover a plate with countless numbers of a star-like form, varying in size from that of the head of a pin down so small the eye could scarcely detect them; but it does not follow that marking should always be *star-like:* when caused by want of harmony between the collodion and bath, the violence of the action and the character of the collodion film will modify their appearance very much; if the bubbles form upon the surface of the film only, they will not look like those formed within the film or beneath it, accumulating with force enough to break out, exploding, as it were, that portion of the film obstructing its escape; but, where surface action only, has taken place, the bubbles will mostly be released when the plate is taken from the bath, and the subsequent action of light and developer will disclose markings analogous to "freckles" in chemical effect; or, if more vigorous, clear spots of a round or oblong form, showing that the film ceased to sensitize as soon as the bubbles began to form. Similar clear spots may occur by small particles of air adhering to the film when plunged into the bath. If many of my fellow "disciples of the black art" would study their "pin-holes," I opine they will sometimes discover that I have indicated their true cause. In correcting such differences between the bath and collodion, I prefer to work with the bath, as it is much easier to manage than collodion.

I do not suppose these ideas are new, as others must have observed the same things, but you are at liberty to use them as you think most profitable.

F. M. Spencer.

A Few Words on Dry Processes.

BY M. CAREY LEA.

Several years ago, I determined to devote a considerable amount of time to the study of dry processes, in order, if possible, to obtain one which should work to my entire satisfaction. After much consideration, I selected the collodio-bromide process as the base of my experiments, and occupied many months in testing it with all the preservatives (sensitizers, more correctly) that seemed to promise favorable results. Some of the results which I then obtained, and which have never been published, acquire just now a certain amount of interest, as will presently appear.

At the time that I commenced these trials, no one, I believe, had worked with the collodio-bromide process except its discoverers, Messrs. Sayce and Bolton, and Mr. Maudsley; and I am glad to think that the results I published aided in bringing this invaluable mode of photography into general notice. Up to that time, no "preservative" had been used with the collodio-bromide except tannin. Amongst the very large number of substances which I tried, several gave interesting results, besides those which I have described in what I have already published on the subject.

Amongst others, I got very curious results by using *coffee* as a preservative, and combining it with *carbonate of soda.* My first trials with this mixture were so remarkably satisfactory, that I anticipated great success for it. Coffee, without carbonate of soda, was neither very sensitive nor very bright. But when the alkali was added, in the proportion of two or three grains to the ounce, the sensitiveness was greatly enhanced, and a bright, clean picture was got. Further trials, however, did not confirm these favorable indications. The plates were irregular; that is, they varied in sensitiveness and clearness, without any evident reason. Probably I should have tried to work out the cause of irregularity had I not, in the mean time, got better results with other materials.

These experiments have been recalled to my mind by the details of a process lately published by an English photographer, Mr. Sutton, in which he appears to think that no one before has made dry plates with an alkaline preservative. So much was claimed by the inventor for this process in advance of its publication, and so much originality for the idea of alkalinity in the plates as a condition of sensitiveness, that it becomes worth while to consider the subject a little further.

Mr. Sutton prepares his plate precisely as directed by Major Russel for his well-known rapid process. The collodion contains bromides only, and is sensitized in an 80-grain bath of nitrate of silver. The plate is then washed, and coated with a solution of three grains of gelatine and three grains of carbonate of soda. It is affirmed, at the same time, that all the materials must be of a particular quality, only to be had of Mr. Sutton's agents. This is certainly not an attractive feature in the process.

In describing it, Mr. Sutton lays great

stress upon the supposed discovery that plates treated with an alkaline preservative will yield good results, affirming that "we" have all been working in the wrong direction, etc. etc. It must therefore be stated, in the most positive manner, that there is no novelty whatever in the use of an alkaline preservative. As I did not publish my own experiment in this direction for the reasons already stated, they, of course, would not suffice to establish the point. They are not needed, however; for, about the same time, a process was published in Germany, according to which plates prepared in a nitrate bath and washed, *were coated with a solution of tannin, to which carbonate of soda had been added.*

Whilst the two alkaline preservatives here cited emphatically settle the question of priority, it is nevertheless interesting to remark how large a proportion of the substances used for coating dry plates are acid in their reactions. Thus, *albumen* reddens litmus paper, and forms combinations, with bases, amongst them, with oxide of silver. *Tannin* also unites with bases. Many *syrups of fruits* have been tried: these mostly contain malic acid. *Gallic acid* is another instance. From one remark of Mr. Sutton's, it would seem that he believed that up to the time of his publication even neutral preservatives had not been tried; but it is easy to cite several very familiar cases. *Glycerine* and *honey*, used often together, are both perfectly neutral. *Gum* is a compound of gummic acid and lime, and is a neutral body. Neutral salts of morphia are effective as preservatives.

It is therefore clear, that for years past preservatives have been used of acid, neutral, and alkaline characters, and that no claim such as that here referred to can be entertained for a moment.

Some time since, in speaking of the development of dry plates with the aid of ammonia, I remarked upon the objection which then existed to the smell of ammonia, and regretted that I had not found it possible to substitute carbonate of potassa for carbonate of ammonia. In alluding to this, Major Russel, in a recent article, doubts if the objection have any importance.

Much depends upon the mode of operating. I prefer to place the plates in pans, with from six to ten ounces of developer, according to size, and to carry on two or more developments at once. Moreover, I prefer to use a warm developer. With several pans before me, containing the above-mentioned quantity of solution of carbonate of ammonia, the odor is very considerable with solutions not containing more than one or two grains to the ounce. I believe that I explained that I thought this objectionable, not because of its unpleasantness, which would be a small matter indeed, but because I am certain that the inhalation of an atmosphere so charged, for a considerable time together and frequently repeated, must interfere with the proper ventilation of the blood, the corpuscles of which ammonia is known to have a tendency to paralyze. If, on the other hand, Major Russel develops one plate at a time on a levelling-stand, the inconvenience may be much less apparent, though even then, I think, not wholly removed. I have, however, always disliked the levelling-stand method. It is certain that, in working with ammonia developers, there should always be a good ventilation of the room, and the developing liquid should not be left standing about either before or after it has performed its functions.

EXHIBITIONS

OF THE MASSACHUSETTS CHARITABLE MECHANIC ASSOCIATION, AND OF THE AMERICAN INSTITUTE.

We have been privileged to visit, this month, the Annual Exhibition of the *Massachusetts Charitable Mechanic Association*, now being held at Boston, and of *The American Institute*, being held at New York.

In the display of Photography, at both places, we were disappointed. It should have been much larger and better, in each case. In the former instance, the photographs are not together at all, and seemed to have been brought in merely to fill up the blank spaces left by other goods.

They ought to have been all hung in one hall, while really they are in several parts of both Faneuil and Quincy Halls, often at a great distance apart. It could readily have been otherwise.

The greatest display is made by Mr. J. W. Black, whose excellent work is well known. Our attention was particularly taken by a series of scenes along the coast of Labrador, of icebergs, etc., which were wonderful and excellent.

Mr. Black also displayed prints from all of the negatives of the eclipse made by him at Springfield, Illinois, together with an immense quantity of plain photographic portraits and landscapes of all styles.

Mr. John A. Whipple also made a fine display of portraits of all classes: out-door groups, some having nearly one thousand persons, or it may be more, in them; and some enlargements from his eclipse negatives, made at Shelbyville, Kentucky. The ones of the corona and of the protuberances, were particularly splendid.

Mr. G. H. Loomis, also, made a neat display of portraiture, etc., together with a series of remarkably fine pictures of glassware, which we have not seen excelled.

Mr. H. G. Smith exhibited copies of statuary in the Rembrandt style, which were very beautiful; and copies of fine engravings.

Mr. Thomas Gaffield, a fine show of leaf, fern, feather, and sea-moss prints.

Mr. W. R. Hawes, plain photographs and crayons.

Mr. C. A. Kihlgrein, velvet cases, mats, etc., etc.

Mr. T. R. Burnham, "The $50 Prize Picture;" large photographs of the President and Vice-President, etc., etc.

Mr. E. J. Foss, solar enlargements, cartes lighted in his special way, and colored photographs.

Mr. A. H. Folsom, fine landscape views.

Mr. A. N. Hardy, a variety of portraits.

Mr. R. G. Mosely, microscopic photographs.

Mr. A. Sonrel, porcelains, transparencies, oil portraits, etc., in variety.

Mr. E. L. Allen, some very fine solar prints, composition pictures, views out of doors, of cattle, etc.; a cabinet size of an artist at his easel, was a gem of its kind.

Mr. Allen's show was very commendable.

Mr. Joseph L. Bates, a fine lot of his best of all Holmes' Stereoscopes.

Messrs. George S. Bryant & Co., a fine show of lenses, frames, etc., etc.

Boston Diatite Co., elegant examples of frames.

The American Magnesium Co., and Mr. G. K. Proctor, their articles of manufacture.

That ended the list.

At New York, while the exhibition was not so large, it was rather more choice, and the arrangement much better, being at the side, between the windows, where all the pictures could have a good light.

Mr. William Kurtz led off with undoubtedly the finest show there of exquisitely colored porcelains, and a fine variety of plain photographs, full of feeling and excellence. Some burnt-in enamels, by Mr. Kurtz, were also very fine, as were also the paintings on porcelain, by Mr. Kunnath of Mr. Kurtz's studios.

Messrs. C. D. Fredericks & Co. followed with some very fine examples of large crayon heads, cabinets, etc. Their exhibition of porcelains was also large, but not colored to our taste, being cold and lifeless, though pretty.

Messrs. Wilson, Hood & Co., of Philadelphia, publishers of the Eclipse Views made by the Prof. Morton Expedition, made a fine display of enlargements from the negatives, and of other sizes; also one of Wilson's Improved Photographic Rests, which now seem perfect, and all one could desire.

Mr. Charles Bierstadt, through his agent in New York, Mr. W. B. Holmes, displayed a most exquisite collection of Niagara stereographic views, which are worthy of a gold medal.

Mr. Williamson, of Brooklyn, made a very creditable display, among which there were some fine porcelains, good oil work, and very bad paper prints colored in miniature style.

Mr. S. A. Holmes, photographs of animals.

Mr. H. Merz, a varied lot of plain photographs, in his own commendable style, among which were some very pretty composition pictures. Mr. Merz displays much artistic feeling, and is one of our progressive men.

Mr. G. G. Rockwood is always alive on such occasions, and had a display of oil portraits, whole plate portraits of the Salomon style, fine landscapes, and an excellent picture of the late Hon. James Harper in oil.

J. H. Morrow, elegant microscopic photographs.

Messrs. Thill & Wapler, porcelain glass.

New York Optical Works, an elegant assortment of lenses of all sizes and styles, which we longed for an opportunity to try.

Lenses were also there from Messrs. F. W. Burwell and C. Weiskopf.

The pictures were well hung, but there did not begin to be the representation of photography there that there should have been.

When will photographers see the importance of making a display of their *best* work at these Exhibitions? It will add to their popularity and profits, and tend to popularize our art.

Oh! that they would take *more* interest in what *so much* concerns them.

PHOTOGRAPHY FOR BEGINNERS.

BY PROF. JOHN TOWLER, M.D.

VII.

The Print.—Having given instructions how to prepare a negative from beginning to end, we shall at once proceed to describe the methods of making or preparing a positive, commonly called a print, on paper. The positive represents the object that has been photographed, in its natural shades and positions; whereas the negative has both these things inverted. The paper generally used in this country is what is denominated Saxony paper: it is manufactured of different thicknesses, for the different purposes for which it is intended. But other papers, besides the Saxony paper, are used, and sometimes preferred. The texture of all photographic paper must be uniform and homogeneous, and perfectly free from all chemical ingredients that might be acted upon by the chemical applications made in the preparation of the print. Little particles of iron, or of its salts, are most deleterious when present in the paper; for they produce black specks in the picture, and in places sometimes so conspicuous as to render it quite useless. Of course, the manufacturers do all that can be done to make paper perfect, so that all such-like imperfections are generally the result of accident, or of carelessness in the operator himself during the various manipulations.

The paper, as it comes from the manufacturer, is called plain or unsalted paper. The stockdealers sell both plain paper and salted paper. But salted paper is of two kinds, namely, plain salted paper and albumenized paper. A picture on the former is called a print on plain paper, and is particularly suited for the artist, to be by him colored, touched up in India-ink,—in fact, wrought up into a work of art either in water colors or in oil colors. The albumen print is the ordinary card-picture or cabinet-picture in general vogue. We will begin with the print on plain paper.

In the first place, the following solution, called the salting solution, has to be prepared:

SALTING SOLUTION.

Chloride of Ammonium,*	160 grains.
Citrate of Soda, . .	200 "
Citric Acid, . . .	36 "
Gelatine, . . .	40 "
Water (pure rain or distilled),	32 ounces.

Soak the gelatine in four ounces of the cold water for an hour or two, and then dissolve it by heating the water to boiling. The salts are dissolved in the remaining 28 ounces of water. When the two solutions are made, mix them together, and filter through fine filtering-paper. If you have any difficulty in procuring the citrate of soda (this is a common occurrence in small country places), you may substitute for the citrate of soda and the citric acid the following:

Citric Acid, . . .	160 grains.
Bicarbonate of Soda, .	200 "

In this case, you must not mix all the salts at once with the 28 ounces of water, but dissolve the citric acid separately in four ounces of the water, and the chloride of ammonium and the bicarbonate of soda in the remaining 24 ounces of water. You will thus have three separate solutions, namely, the gelatine solution, the citric acid solution, and the solution of the other salts. Mix the first and the last at once, and stir or shake them intimately together; now add cautiously, and little at a time, the acid solution, allowing the effervescence to subside each time before more is poured in. If you are not thus careful, the effervescence will be so energetic as to cause considerable loss of the fluids by boiling over, as it were. Filter as soon as the effervescence has entirely subsided. Pour the filtered solution into a large porcelain or gutta-percha dish, which has been previously placed on a level table or stand.

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* Take only the white part of this salt, and exclude the yellow portion, which contains iron, and is detrimental to the paper in the subsequent operations.

The operation is performed in open daylight, in any convenient room free from dust. A room with a boarded floor, that has just been mopped, is the best. Close the windows and the door during the operation, in order to avoid all drafts of air that would necessarily bring in dust.

It is supposed that we are going to salt whole sheets of paper at a time. Turn back the four corners of each sheet of paper, so as to make them stand up like four triangular protuberances, about half or three-quarters of an inch high above the back of the paper (if the paper has any difference in its two surfaces). You now seize each sheet by two diagonal corners, one in either hand, and allow the middle to sink so as to come in contact with the salting solution. As soon as this is the case, lower each hand gradually and slowly, until the whole sheet lies intimately in contact with the fluid below. Now raise up one of the other four corners with the left hand until half of the surface of the sheet is exposed; and, if there are any air-bubbles, break them up with a small piece of blotting-paper, or, still better, with a glass triangle. Lower this half and raise the other half, and perform the same operation of removing air-bubbles and wetting the parts beneath them. Each sheet is now left on the salting solution about three minutes, or until the four prominent corners have sunk down and lie flat on the fluid. At this stage, the sheet is raised from the solution, held a short time over it in order to drain, and then suspended by being attached to a cord stretched across the room by means of clothes-clamps. It is not advisable to hang the sheets diagonally across the cord, as is but too frequently done; for such a procedure *always* leaves a diagonal line visible in the subsequent printing operation. In my opinion, the best plan would be to have large wooden rollers constructed across the room, and then to suspend the sheets *diagonally* over them. Remove the excess of drainage, as it accumulates, either on the lower edge or on the lower corners, by means of blotting-paper. Mark the back of each sheet, when dry, so that you may know which surface has been salted, and pack them away where they can be preserved for future use, and free from dust and moisture. Sheets so prepared, undergo no change when exposed to light; they are merely salted sheets, but not sensitized. They contain a soluble chloride, organic matter, and what may be termed a toning substance.

The next step to be taken is to sensitize the paper. Make the following solution:

Nitrate of Silver,	4	ounces.
Distilled Water,	28	"
Nitrate of Ammonia,	2	"

Filter the solution, if necessary, and preserve for use. When required, pour it into a large porcelain dish, which must be quite clean; and then proceed and place the salted surface of the paper upon this solution, in the same manner precisely as each sheet of paper was laid previously upon the salting fluid. Let the sheet remain two minutes on the silver solution. This operation must be performed in the yellow-room; that is, in a room where all the lights have been painted yellow (with chrome yellow and drying oil). In this room the sensitized sheets are hung up by clamps or otherwise, and dried. In this condition they are sensitive to common light, but not to yellow light. When dry, they are ready for the next operation.

Let us now make an elementary experiment or two.

Dissolve a few grains of chloride of ammonium in a wineglassful of distilled or rain water; or you may substitute common salt for the salt of ammonia. This solution may be exposed to the strongest light, and for an indefinite time, yet no change of color will be manifest after such an exposure. Now let us add a few grains of nitrate of silver to the solution (in the yellow-room); you observe there is a precipitate, beautifully white, produced; and the precipitate will remain white for an indefinite time as long as it is kept in the dark or in the yellow-room, which is photographically dark. We will, however, take the solution holding the precipitate into the light, and expose it to the rays of the sun. Now you see a change takes place; the white powder assumes a violet tinge quickly, and throughout the solution, if we shake the mixture well, and expose different sides of the vessel. But the color remains still violet. If now we add to the solution gelatine, citric acid, the pulp of paper (that is, cotton or linen fibre), or, in fact, almost any kind of organic matter, the violet color assumes other hues,—becomes toned, as we say in photographic language,—and thus turns brown, red, chestnut-colored, blue, blue-black, gray-black, dead-black. Without these organic additions, the tone is *violet;* with them, you can obtain any of the dark hues mentioned, just as you like.

The paper that has been sensitized, as just described, contains a number of these organic matters in intimate contact with the white chloride of silver diffused through the pores of the paper, and in the fibrous substance itself that constitutes the paper. Take, therefore, a piece of this paper and expose it to the rays of the sun; you may easily observe the various tones as they are produced gradually, until finally the color of the paper becomes fixed and unchangeable.

We are now ready to print.

Place the negative, picture side upwards, in the printing-frame, and a piece of the sensitive paper, sensitive side downwards, upon the negative; over the paper lay a piece of woollen cloth of the same size, and then clamp the back of the frame down firmly upon them. Turn the frame upwards, and expose the glass surface to the sun or to diffused light. You will soon observe a change of color in the paper thus exposed, and the picture will shortly be printed. You have to learn by experience how long you have to allow the print to remain in the sun. It is difficult to tell you in words when to stop. You must certainly over-print the picture; that is, the shades must be deeper than good taste would require them in a finished print, because they are afterwards reduced in the subsequent operations. As soon as the picture is sufficiently printed, the paper is taken out of the frame and placed in a drawer or in a book, until you have finished printing all you have to do on the present occasion. Before the picture is complete, it has to be washed thoroughly, then toned in a solution of gold; again washed, then fixed in a solution of hyposulphite of soda; and, finally, again washed and dried;—all which operations I shall carefully describe, after I have shown how to prepare albumen paper, and brought the albumen print to the same stage as we have now got the plain print. These operations will come in my next communication.

ON THE SELECTION OF LENSES.

We make the following extracts from *Lea's Manual of Photography.* We cannot commend this admirable text-book of photography too highly to our readers. The chapter from which the following extracts are made, says one of our subscribers, "would have saved me $800, had I been privileged to read it a year ago." The first thousand copies of Mr. Lea's Manual are already sold. A fresh lot is now ready, and will be mailed to any address, postpaid, for $3. Every photographer in the world who can read English should have it in his studio.

"*Selection of Lenses.*—Much that has just been said in the comparison of lenses will necessarily control their selection; but some additional points need to be adverted to.

"The *color* of a lens is always important. Place the lens on a perfectly white sheet of paper—any brownness of tint is a serious objection. In an old lens this may arise from the Canada balsam, with which the separate portions are cemented together, turning yellow. If this be thought to be the case, the lens should be taken to an optician to be separated, cleaned, and reattached. The photographer is not advised to attempt this himself.

"*Bubbles* in the glass are objectionable, because they tend to throw rays in abnormal directions, and to impair the brilliancy of the image. One or two small ones are not important, nor a sufficient cause for rejecting an otherwise satisfactory lens. But it indicates carelessness in the maker, as these bubbles are always visible in the disk from which the lens is made, and such disks should be rejected.

"*Striæ*, hair-like or thready transparent lines, are very objectionable, and at once a sufficient cause for rejection.

"*Scratches.*—Lenses will sometimes come from the maker with scratches, the result of careless handling of tools in setting, or of bad packing. Such of course are returned.

"*Centring.*—To every lens there belongs an optical axis, a line perpendicular to the surface of the lens, and passing through its centre of curvature. Every achromatized lens consists of at least two portions, and it is necessary that these should be so arranged when attached together by the balsam used for that purpose, that the optical axis of each should exactly correspond. When two lenses or more are united to form an objective, not only must the parts of each be properly disposed, but the front lens must have its axis coincident with that of the back lens. This will depend upon correct mounting.

"The usual way in which opticians test the correctness of the centring, is by making the tube containing the lenses revolve in an upright position, that is, with the lenses horizontal. If, now, a candle be placed at a little distance, and the eye be placed at a convenient position, the candle will be seen reflected from the surface as a bright point. Every surface of every piece of glass in the tube will send back a reflection. Next the tube is caused to rotate. Each lens that is correctly centred will continue to send its reflection back perfectly fixed and immovable; but any surface that is out of centre will cause its reflection to deviate more or less according to the amount of error. It is evidently not necessary that all the reflections should be seen at once, but they may be observed successively. This method of observing evidently renders it easy to fix which, if any, of the surfaces is erroneously placed, and in which direction is its error.

"Another mode of observation is more convenient for the photographer, as not requiring the apparatus needed by the method just described.

"The observer places himself in a dark room with a single candle. Standing five or six feet from it, he looks at it through the objective, inclining the latter a little until he sees a series of bright points, which are the images of the candle, produced by successive reflections from the different surfaces of the lens. When a lens has four pieces of glass in its construction, as in the case of the portrait, globe, orthoscopic, and some other lenses, the number of possible images is very considerable. These cannot generally be all found at once, but eight, ten, or more can be counted; a little practice, and altering the inclination of the lens, materially aids in increasing the number.

"If now the centring is perfect, it will be found that, by carefully adjusting the position of the lens, all of these reflections can be made to range themselves in a straight line. But if any one or more of the component parts is out of centre, this will be found impracticable. One or more of the bright points will remain obstinately out of line; and, when a little movement is made which brings them in, it will be found that some other image, previously in line, has slid out of it. When the observer, after very careful trial, finds that it is positively impossible to make all the images range, he will be justified in concluding that there is a fault in the centring.

"Whilst this test is so easy that any intelligent observer can apply it at once, there is no doubt that it is a very severe one. A lens may perform quite fairly, and yet such an examination as this may reveal a defect. But there is no doubt that first-rate excellence is incompatible with such defectiveness.

"It is also evident that the fewer the pieces of which a lens is composed, the less difficulty the optician will find in getting them all in correct line.

"*Quickness.*—When lenses are tested with equal stops (in proportion to their focal length), their comparative quickness will depend upon the whiteness of the glass, the fewer number of surfaces that enter into their formation, and on the curves given by the optician: careful testing and this alone can settle the point.

"*Chemical Focus.*—The correction for chromatic aberration is now greatly better made than formerly. To test whether a lens is properly corrected, select a newspaper printed with sharp-cut type, and paste a piece a foot or fifteen inches square upon a smooth piece of board. Set this up before the camera, with the columns vertical, but inclined in a slanting direction, so that one side, the right, for example, shall be a couple of inches nearer the camera than the left, keeping the board, however, exactly upright. Focus carefully along the central upright line, and copy it full size, or thereabouts.

"Next examine the hair-strokes of the letters on the negative with a microscope. If the lens is properly corrected, the central line should be in the sharpest focus. If, however, it be found that a portion to the right or left of the central line is in better focus than the centre, then the correction has evidently been faulty. If the sharpest image is of a part *nearer* to the lens than the centre, the lens is *under-corrected;* if of a part further from the centre, the lens is *over-corrected.* In either case, it is said to have a '*chemical focus;*' that is, its chemical and visual focus does not correspond, a fault of the first magnitude, and sufficient cause for rejecting the lens entirely."

* * *

Remember, good negatives are the keystone of the grand arch of photography. Do not expect to get good prints and rich tones unless your negatives are good and rich, for it is impossible.

PRACTICAL NOTES ON PHOTOGRAPHIC SUBJECTS.

BY G. WHARTON SIMPSON, M.A., F.R.S.

Enlargements on Canvas by Transfer.—I have a new, simple, and most excellent method of producing enlargements on canvas to bring before your readers. I will describe it in detail, as I saw it worked in one of the largest and most successful establishments in this country. Hitherto it has been kept a secret, and has not, I believe, been worked in any other establishment. I have great faith in it myself, partly from what I saw of the excellence of its results, and partly from a few theoretical considerations which I will mention. It seems good, because—

1. For large pictures to be finished in oil colors, almost all artists prefer the use of canvas, as affording a more pleasant surface for their work, and producing, by its texture, a more satisfactory result than paper.

2. It is the most simple mode I know of obtaining an image on canvas, and, being a transfer method, all the risk of imperfect fixation or imperfect washing, which attends the method of printing on canvas direct, is avoided.

3. The enlargement is produced on collodion; and all experience has taught that a developed image on collodion is the most permanent form of silver picture we possess. Indeed, if properly produced and properly preserved, it has never been known to fade. I doubt if such a thing as a faded negative is on record.

4. Enlargements on collodion are, when skilfully produced, by far the most perfect amplifications known. The delicacy of the film compensates for the tendency to coarseness, which the operation of enlargement necessarily produces, and it is possible to produce pictures enlarged ten or twelve diameters, scarcely distinguishable from images produced direct without enlargement at all.

In the mode of producing an enlarged transparent positive on collodion, there is nothing essentially new, and I need only very briefly advert here to the operations as I saw them performed. The chief point of importance is the use of a tough collodion of good body, containing not less than 10 or 12 grains of pyroxyline to each ounce of collodion. That I saw used was a good commercial bromo-iodized sample, to each ounce of which about 5 or 6 grains of papyroxyline had been added. A nitrate bath, in ordinary good working condition, was employed, and, as the plate was large, 22 x 18 inches, a flat dish, instead of a dipping bath was used. A life-sized head and bust was produced thereon, enlarged from a cabinet negative. The exposure was about thirteen minutes, with a pretty good light from a northern sky. Iron development (somewhat rapid), hyposulphite fixing, mercury, and hyposulphite toning, completed the transparency. It is unnecessary to dwell in detail upon the mode of producing and toning the picture. Any of the known modes of producing a good positive image on collodion may be employed, and probably that described in some recent "notes," with pyrogallic acid development and gold toning, would be found the most efficient of any. But it is important to bear in mind that a collodion of good body is absolutely necessary for success in the next operations.

A good transparent positive on collodion having been obtained, the transfer to prepared canvas is the next operation.

The prepared canvas, as sold ready for the painter, is employed. The somewhat greasy and repellent or water-proof surface requires, first of all, to be removed. This is effected by means of a warm solution of common carbonate of soda, applied with a piece of flannel. After well scouring with this solution, until clean water flows freely over the surface, it is thoroughly well rinsed and allowed to dry. The glazed surface of the prepared canvas will now have acquired a matt texture of slightly absorbent character. This is then treated with a weak, warm solution of gelatine, containing from 10 to 20 grains to an ounce of water, applied with a sponge, and suffered to dry. The canvas prepared in this way may be kept ready for use.

Let us now return to the collodion enlargement, which has been fixed, toned, and washed. It is now placed on a levelling-stand, and a strong solution of citric acid in water—the exact strength is unimportant: say 30 grains to an ounce—is poured over it, and allowed to remain a few minutes. The action of the citric acid is two-fold: it restores the toughness of the film, which has become somewhat powdery in character from the action of the mercurial solution, and it loosens the film from the glass. After a few minutes, the citric acid solution is poured off the plate and preserved for subsequent use. The film is now very thoroughly washed under a tap for five or ten minutes, during which time it will have become completely loosened from the glass, upon which it will readily slide about. Should it not become loose during the washing, it must be again treated with the citric acid solution, and again washed. If a tardiness to loosen be noticed, the edge of the film may be lifted, and a gentle stream of water suffered to run underneath, and the plate may be moved gently about until it is seen that the film rests loosely on the glass without adhesion at any point.

The next step is to get it on the canvas. To effect this, a sheet of tracing-paper the size of the plate is taken and placed upon the film. If two persons can be engaged in the operation, some little trouble in subsequent operations will be saved if the tracing-paper is first wet and suffered to expand; each person then taking hold of two corners, the tracing-paper is gently laid upon the film. If one person only is engaged in the operation, the tracing-paper is more easily managed dry in the first instance, as there is less difficulty in handling it so as to get it down flat on the film when a large plate is used. One edge of the collodion film is then turned over the tracing-paper, and the whole, paper and film adhering, lifted by a sliding motion off the glass, and placed, film down, on the prepared canvas. It is then covered with blotting-paper and thoroughly well rubbed down, the tracing-paper—which has simply served as an aid to lifting the film, and, by its transparency, permitted the position of the image to be seen in placing it on the canvas—is then lifted away, and the transferred film left to dry.

When dry, this film adheres so perfectly to the prepared canvas that it cannot even be scraped away without injuring the surface of the canvas. It cannot be removed without scouring with hot water or a hot solution of soda. In no instance has it chipped, or exfoliated, or in any way shown any tendency to leave the canvas, except in an experimental case, in which the prepared surface of the canvas had not been treated with a soda solution in the way we have described. So far as can be judged, the adhesion is perfect, and the result in every way satisfactory.

As will readily be understood, the head and such other portions of the figure as may be desirable, can be thus transferred to the canvas, and such other portions as may be required can easily be painted in by the artist. In the example I have been describing, a life-sized head and portion of the bust filled a 22 x 18 inches plate, and this, transferred to a canvas 24 x 20 inches, gave more space for background and figure.

Taking the balance of advantages and disadvantages of this and other processes for securing photographic enlargements on canvas, this appears, undoubtedly, most simple and easy, and, of all silver processes, the most promising, we think, as regards permanency, inasmuch as the canvas—the final basis of the picture—never comes into contact with silver solutions or fixing solutions, difficult to eradicate from a substance like painter's prepared canvas, when once its surface has been impregnated or saturated with the various chemical preparations.

Alkaline Development.—The advantages of alkaline development for almost all dry plates, was the subject of a discussion at the South London Photographic Society recently. Mr. Howard, a skilful amateur, advocated this method, and introduced some novel features into the mode of working it, especially in the final mode of securing intensity, in which, as a rule, he uses an acid silver solution alone, without pyrogallic acid. He prepares five solutions, as follows:

I. A 3-grain solution of pyrogallic acid.

II. A 5-minim solution of ammonia.

III. An 8-grain solution of bromide of potassium.

IV. A 5-grain solution of citric acid.

V. A 10-grain solution of nitrate of silver.

Of these he takes, after moistening the exposed plate, sufficient of this pyrogallic solution (No. I) to cover the plate, and adds to it a few drops of the bromide solution (No. III), and pours it over the film. It is then returned to the developing-cup, and a few drops of the ammonia solution (No. II) are added, and the plate again flooded. This at once commences the development, and gradually brings out a phantom image. This will proceed until all detail is out, but no intensity will be acquired.

And here is the fact to which Mr. Howard points as an especial advantage: development proper is completed before intensification commences. One great difficulty of the dry-plate worker has generally been to prevent a certain sparkling play of chalky lights on his picture: an absence of the quiet softness and harmony of a good wet-plate photograph. The operation of intensification has generally proceeded *pari passu* with the process of development. Prolonged application of the developing solution has often been necessary to get out the details in dark shadows of foliage, and, with the peculiar tendency to aggregation in the deposit of silver, the lights, which commence to develop first, have been steadily acquiring density. The remedy has been to add silver to the developer very sparingly at the outset; but, with every precaution, it would often happen that the lights became too dense before the half-shadows were made out. Here Mr. Howard points out that development and intensification are divided into two distinct operations, each singly under control, the intensification not commencing until development is complete; and, besides, each being under control, each receives the photographer's undivided attention whilst it is in progress.

It should be noted that the mode of applying a little of the bromide solution to the film in conjunction with pyrogallic acid, before the ammonia is added, is found most efficacious in preventing fog. The ammonia is a rapid accelerator of development, but sometimes its action is so energetic that a trace of fog is initiated at the outset when it is applied to the plate, and this goes on increasing as development and intensification progress. The bromide applied first checks this tendency, but if applied in excess, or continued for too long before the alkaline solution is applied, it arrests development seriously, and sometimes stops it altogether.

The perfectly developed thin image having been brought out by the alkaline solutions, intensification proper begins; and, to make it safe and avoid risk of fog, the plate is not only well washed, but it is flooded with the citric acid solution (No. IV). And now the somewhat novel principle of intensification commences. Increased density is obtained by the simple application of a mixture of citric acid solution and the silver solution (No. IV and No. V), a sufficient deposit of silver generally taking place without the use of pyrogallic acid at all.

Of course, there are occasions when it is necessary to use the pyro solution as well in securing intensity; but in most cases it can be dispensed with, and good results obtained.

The negatives which Mr. Howard showed to members were produced, however, in every instance, on collodio-albumen plates, and the most striking illustration of the advantages of the alkaline method consisted in a collodio-albumen plate containing two negatives; that on one-half received an exposure of two minutes, and produced a good negative by acid pyrogallic development; the other half received an exposure of ten seconds, and produced a negative, by alkaline development, scarcely, if at all, inferior to the other. One fact like this speaks volumes, and demands the most earnest attention of dry-plate photographers.

Splitting of Negative Films.—I do not know whether American photographers are in the habit of trying their hands at amateur varnish making. It is a seductive experiment, but a very unwise one. It seems very easy to dissolve a resin in an appropriate solvent, and secure a pint of varnish at the price of an ounce. But I can assure experimentalists, after a tolerably extensive experience, that to secure any degree of success in varnish making requires much technical knowledge of resins and their conditions, as a guide to their selection, combination, and solution, which can only be gained by experience. And a good negative is too valuable to be treated with a doubtful varnish. These remarks are suggested by a most disastrous recent experience of one of my friends, a first-rate photographer and a good chemist. For a reason into which I need not enter, he was induced to abandon the varnish he had been using for years, and try one made according to a very simple recipe: it consisted merely of gum sandarac dissolved in alcohol. Nothing could be simpler to make; nothing brighter or more perfect to look at; nothing easier to use; nothing, at first sight, more efficient when used. I know sandarac, however, to be a treacherous, untrustworthy resin, exceedingly friable, and having no toughness or tenacity whatever; and the event proved this.

My friend had been in the habit of congratulating himself that he had had total immunity from one trouble of which he had heard others complain: he had never had a cracked film. His establishment is one of the largest, best managed, and perfectly appointed in the world. Every appliance is of the best kind, every facility for producing and keeping negatives of the most undoubted excellence. Unusual care is taken in washing the negatives, so that no trace of fixing salt receives a chance of remaining in the film. In many cases, the negative remains soaking for hours in water, in order to be examined carefully, and, if necessary, re-intensified when the day's work is done. In all cases, the negative, after the immediate washing it receives at the hands of the operator, passes into the care of an assistant operator, by whom it is again well washed before it is dried and varnished. The finished negatives are carefully wrapped in blotting-paper, and stored in pigeon-holes in a dry room.

Soon after the use of the new varnish, however, the printer was startled by finding that, in several of the negatives the films had *begun to split.* The character of the cracks was as peculiar and unusual as the circumstances. They had, in some cases, something of the vermicular character, but in most instances formed an irregular network, the spaces or meshes being of various sizes, with areas varying from a quarter of an inch in diameter to half an inch or an inch, whilst, in others, they were so exceedingly fine as to resemble the kind of rupture or breaking of the surface caused by the drying and crystallization on the film of some saline solution. In some cases they resembled minute crescents detached from any connecting line; in others, they were like a continuous chain of crescents. In some cases, the cracks were confined to the background, leaving the figure intact; in some, they ran along the line formed by a dense part of the image, and, in more, they intersected the dense parts, such as the forehead and cheek. In a few cases they were taken in time, and found to have divided the varnish, only leaving the continuity of the collodion film perfect, whilst, in others, the film was split up from the glass and completely exfoliated, in a few instances leaving scarcely a vestige of collodion or varnish on the plate. The defect was, fortunately, confined to the work of two or three weeks, permitting a close examination of the materials employed and the conditions present, the actual cause being thus tolerably readily isolated, and the lesson made pointed and exact.

The varnish was the last thing suspected. All the materials in use, all the conditions of working were carefully overhauled, and the cause in the varnish was only reached by an exhaustive process, all other things having been carefully examined and acquitted. On trying another varnish, the mischief disappeared, thus confirming, beyond question, the guilt of the sandarac sample. Varnish makers, of course, do, or should, understand their business, and know the need, in many cases, of combining in a varnish resins with different qualities. A friable resin like sandarac should never be used without the mixture of some essentially tough resin, such as benzoin. Shellac is one of the most trustworthy of the resins when it has not been bleached. The white lac is comparatively worthless, and, generally containing chlorine, will often act on the negative. I should always avoid a bleached shellac for varnish making.

Decolorizing the Printing Bath.—It is somewhat surprising to me to find that the use of kaolin is still persevered in for the purpose of clearing or decolorizing the nitrate bath. Mr. England, one of the most skilful of the practical men in this country, proposes boiling to supersede the use of kaolin. He writes:

"When the silver solution has become red or discolored from repeated use, pour it into a porcelain evaporating-dish supported on a gas or other convenient stove, and raise the liquid to the boiling-point; continue the ebullition for ten minutes or a quarter of an hour, at the expiration of which time the organic matter will have been precipitated or destroyed. After subsidence and cooling down to the ordinary temperature, the nitrate bath, however much discolored before this treatment, will be found once more quite clear and bright. If the solution should be required for immediate use after boiling and cooling, filtration can, of course, be resorted to in the usual way.

"Those who adopt this method will be surprised at the large amount of albumen which becomes dissolved by the nitrate bath during once or twice using, and which, by the simple method above described, will be coagulated and precipitated in the black deposit, which should not, of course, be wasted, but thrown into the receptacle for silver residues. I may also mention that it is necessary to measure the silver solution before boiling, so that an equivalent amount of water may be added to replace that lost by evaporation. If it be suspected that the bath is below the standard strength, the whole or a portion of the water may be omitted. I feel sure that those who once adopt this method of treating the discolored solutions will forever discard the use of kaolin, as being a much superior and efficient system of purification, less troublesome, and more economical."

Another of my correspondents states that by sunning, or keeping the solution in the light when not in use, he obtains the same result without boiling. But it appears to me that there is an objection to either process. Until the albumen in solution in a printing bath has discolored it, by partial reduction, I think its presence is beneficial rather than injurious: it checks the tendency to solution of the albumen on the subsequent sheets floated on it, and it aids in giving richness. Either boiling or sunning, however, gets rid of this albumen in solution, by throwing it down, whether it is discolored or not. I have found that the addition of a few drops of a solution of chloride of sodium, and shaking, take down all the reduced particles of albuminate of silver which discolor the bath, in a simpler and more efficient manner; doing, at the same time, less harm than any other method I know. In my hands, this method is as satisfactory as it is simple, and is, I fancy, largely practised.

NEW AMERICAN STUDIOS.

KILBURN BROTHERS' MODEL STEREOGRAPHIC ESTABLISHMENT.

Instead of following up the description of portrait studios this month, we will digress a little, and proceed to describe an establishment devoted entirely to the production of out-door views, *i. e.*, that of Messrs. Kilburn Brothers, Littleton, N. H.

We have frequently alluded to the excellent stereos produced by these gentlemen, and, having become much interested in their progress and success, took great pleasure, a few days ago, in visiting their mammoth establishment, which is much larger than we had expected.

Their building is three stories high. The lower floor is divided into four rooms; the back one, facing south, has four windows, at which the printers are stationed; next to it is the silvering-room; next, the toning-room, in which the fuming-box is also placed, and the front room is the wash-room. In the latter there are eight or more tanks 5½ feet long by 18 inches wide, and 5 inches deep. These tanks are placed in rows of two each; each row a few inches lower than the one above it, so as to give a fall to the water. They are fed with water by a constantly running mountain spring. The water enters at the end of the upper row, passes through down into the next, and so on to the last, and finally out at the waste-pipe, so, it will be seen, that it is constantly running and changing, and the prints thoroughly washed by the purest of water.

A one-story building, at the side of these rooms, is stored with wood, which, we are assured, is largely needed during the cold winters they have in New Hampshire.

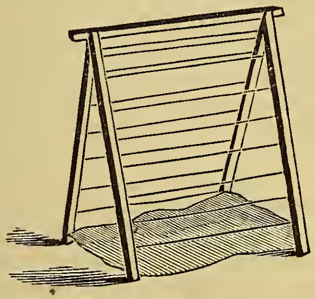
The second floor is entered from the street, and the front room, handsomely lighted by two large show-windows, is used as a sales-room, and is handsomely furnished with fine glass cases, etc. Back of this, at one side, is a room where the manufactured slides are kept, and where a table is placed for the use of customers when selecting them. Back of this is a large and convenient double sky and side light, where groups, pictures of flowers, birds, etc., are made; and, at the side again, separated by a stairway, are a stock-room for the storage of supplies, packing, etc., and the dark-room, all conveniently arranged. Back of all these is the winter printing-room, *i. e.*, a room where the windows are inclosed, to protect the printers from storm and cold.

The third floor, back end, is devoted to printing, the same as the first and second, and the rest of the floor is a general work-room, where the paper is cut, prints dried, cut out, mounted, rolled, titles printed, and spots touched out. All the rooms mentioned are conveniently large, well lighted, and admirably arranged, and so that everything is cleanly and nice.

The most of the work is done by young ladies, there being only one male assistant in the establishment.

Having seen their full force at work on a bright day, we will briefly describe their proceedings as near as we can remember.

The negatives are made by Mr. B. W. Kilburn, and stored in small boxes of about one hundred each. We shall say more about him in a future chapter, when we hope, also, to give our readers a specimen of his work. The negatives being made, then the next step is to mark a base line along the lower part to guide the printer and mounter. The albumen paper is laid, face down, and, with a measure of proper size, is marked on the back into fifteen parts of proper size for the printer. The paper is then taken to the silvering room and handed to two young ladies to sensitize. They have a huge pan of solution, at one side of which, next to the manipulator, is fastened a glass-rod one inch in diameter. The paper is floated, and, as it is raised from the solution, is drawn over the glass-rod, which takes off all superfluous solution admirably, and runs it into the pan. Strips of wood lie near by, with a clip fastened at each end. The sheet is hung in the clips, and the strip hung across parallel bars over a heated pipe to dry. Scarcely a drop of solution falls after the sheet is drawn over this rod, and thus much silver is *saved* without infringing any patent. After the paper is dry, it is placed in the fuming-box, and, when properly fumed, is cut into pieces as before marked out, and these pieces are furnished to the printers as they want them. The young ladies who print, are seated at the windows. On a table before them, are two covered boxes, one for paper and one for the fresh prints. Each printer runs from nine to twelve negatives, according to quality. They never touch a negative with the finger-nail, but use a camel's-hair blender to raise the corner of the paper when they wish to examine or remove the print. The prints are taken from the printers, then they are washed, toned, and fixed systematically and quickly in the usual way, and thrown into the washing-tanks before described. The prints are usually washed all night. When removed from the tanks they are hung on lines to dry. Instead of hanging lines across the room, to the permanent annoyance of all passing to and fro, they have a double, square, light framework, hinged at the top, spread out at the base, and there connected by canvas, making a triangle shape at the ends; and across these frames the lines are hung at proper distances apart, and on these lines are hung the prints to dry. It will be seen, by the drawing annexed, that the canvas serves to catch the drops, thus keeping the floor clean, and to keep the frames from spreading out too far. When not in use, the frames are closed together and placed on one side out of the way. We have never seen a more convenient plan than this for drying. The prints, when dry, are then carefully examined, and imperfect or torn ones thrown out. They are then cut out for mounting. Messrs. Kilburn Brothers have recently adopted Bergner's print-cutter as the most rapid for cutting out their prints, and recommend it very highly. They have several of them. The prints cut out are then passed to the mounters, and are mounted in the usual way with starch. After they are mounted, the prints are rolled, the titles are printed on them by the "Novelty" hand-presses, and they are ready for market.



The majority of the negatives are of views in the wondrous White Mountains, our visit to which will make another chapter hereafter. A constant flow of orders comes in upon these gentlemen, and they are always behind, though their average production is 1200 prints per day. Their work deserves all the success they get, and we are glad to see them prospered. Their establishment is a model one. Everything works happily, like clock-work, and well. Having visited the great White Hills with the indefatigable photographer himself, his work now has a new charm to us, and we can see new beauties in it every time we look.

Our readers shall soon see if we are overrating it or not.

GERMAN CORRESPONDENCE.

Further Particulars of Albert's New Process —Electro-magnetic Washing Apparatus— Rembrandt Effects — Germany — Pictures of Prominences.

THE new process of Albert continues to be the theme of conversation. Much has been written on this subject, I am afraid almost too much. This is, perhaps, the reason why the pictures, which were sent to America, did not come up to the general expectation, although every one must admit that, in the rendering of half tones, Albert has done more than any one else, Woodbury, alone, perhaps excepted. The results of both processes you will find in my journal, the *Photographische Mittheilungen*, in the August and September numbers, and the comparison of the two processes is highly instructive. In regard to the price of Albert's prints, I am still without definite information.

When we institute a comparison of the results of the two processes, we find that the Woodbury print excels in the vigor of the blacks, and, in this respect, is fully equal to a silver print, while Albert's prints show more purity in the lights. Albert can make pictures that are graduated in tone. The durability of both pictures is about even. Woodbury employs gelatine ink, while Albert uses fatty inks. Apparently, the Woodbury prints are not injured by moisture, while a wet sponge will injure Albert's pictures; but this circumstance is not of so much account in judging of the merits of the two processes, as a slight covering with a waxy substance will, for both, secure the necessary protection.

Much more important, is the paper. Albert has sent me a whole assortment of pictures printed on different kinds of paper.

The prints on chalk-paper are, generally speaking, sharper and more brilliant, that is, deeper in the shadows and whiter in the lights, but these prints show a slight grain. The impressions on ordinary Steinbach or Rives paper are homogeneous, but less brilliant and sharp. The most brilliant of all, was an impression on wax paper, which, in fact, was fully equal to a silver print. If the production of pictures on wax paper is an easy matter, is a question which I am unable to solve.

The pictures intended for my journal, 1300 in all, are printed on plain Saxe paper, and Albert writes to me that they are all printed from the same form, in fact, 2000 impressions had been taken from the form previously. As regards the production of quantities, little difficulty need to be apprehended. The prints are somewhat uneven in brilliancy and sharpness, but Albert, himself, excuses this with the want of experienced printers, an excuse which is not very inviting for others to practise the process, for, every one who will practise the method, will have to work with less experienced hands than Albert can command.

How is it now with silver printing? Are its days numbered once more, and will this process take its place? To judge from the many different samples before me, I think that the reproduction of Kaulbach's cartoons, which Albert has made by his process, cannot be excelled, and that the process is especially adapted to the reproduction of hand-drawings in the manner of cartoons. Likewise, it would suffice for technical drawings, but how would it do for portraiture? This is just the point that is of most importance. In portraiture we make the largest demands in regard to sharpness, vigor, delicacy of half-tone, and when we place an Albert print, like the inclosed one, for instance, alongside a silver print, we must confess that in all the points which we enumerated above, the silver print will excel.

To make a general comparison, the Albert prints are about as good as prints on salted, plain paper, or developed prints on plain paper; but, if Albert's prints should prove to be very cheap, it would still be possible that, in spite of their inferior quality, they would obtain the support of the public; for, if in the future, the public could obtain a hundred pictures after Albert's process, for the same price which they now pay for a dozen silver prints, it is quite likely that the generality of persons would give Albert the preference.

Likewise, it is quite evident that Albert's process is preferable to the ordinary lithograph or wood-cut, and that, generally speaking, the preference will be given to his process for illustrating books, pamphlets, and magazines, or, where it becomes necessary to produce pictures in large quantities. Our publishers have already an eye on it, and Bruckmann intends to employ a similar process for the reproduction of his publications. The ordinary negatives, as I have already stated in previous letters, are not suitable for the process, as right and left are reversed.

If, after the publication of the details of Albert's process, and when many intelligent men shall have taken hold of it, if then the short-comings will disappear, we must leave to the future to decide.

In our Society for the Promotion of Photography, we had recently a discussion, which is of vital importance for the silver process, *i. e.*, the short-comings of the washing apparatus at present in use. The methods for producing a rapid change in the water are good enough, but nowhere do we find appropriate provision made to prevent the prints from sticking together. Especially with larger prints, it occurs quite frequently that two or three will stick together, and, consequently, the interior ones will receive an insufficient amount of washing.

The printer generally examines the prints in the water, from time to time, and separates them by hand. To remedy these defects, Mr. Schade, in Saran, proposes an apparatus of the following construction:

The box or trough containing the water, is placed on a kind of prism, on which it will easily move from side to side. The oscillating motion is produced by an electro-magnet, which is placed under the box, and which attracts a piece of iron attached to the latter; at the moment when, in consequence of this attraction, the box tilts to one side, the connection with the battery is broken by means of an instrument called a circuit breaker or commutator, well known to every telegraph operator; the box returns to its original position, makes again connection with the battery, and the same operation repeats itself.

The arrangement is easily made. A battery of two elements, has sufficient strength to produce from 200 to 500 oscillations per minute, and the motion which is communicated to the water is so energetic, and extends so thoroughly to every particle, that prints which stick tightly together will separate in a few moments.

The Rembrandt pictures which you have published, have been viewed here with much interest, and, although this style is far from meeting with undivided approval, on the contrary, we generally share the opinions of Kurtz, published in your July issue; still, some of our photographers have tried to please the public with this novelty, and Grasshoff has succeeded in producing a series of very handsome pictures.

I cannot help mentioning, in this connection, the beautiful leaf-prints of Mr. Gaffield, in Boston, and the splendid "Rowe's Drawings," from Mr. Allen, in Boston, which are universally admired here.

The results of the Solar Eclipse Expedition, of August 7th, are looked for with the liveliest interest. The papers have announced your success, but the details are wanting. But, what will you say when I tell you that Prof. Zoellner, in Leipzic, sees the protuberances daily; that he has observed several of the flames which we have photographed at Aden; that he has seen how they sway to and fro, like a tree tossed by the tempest; how they finally topple over and disappear. But more, he soon hopes to be able to photograph the prominences in broad daylight. You see we have no need any more for eclipses.

Yours, truly,
Dr. H. Vogel.

SOLAR PHOTOGRAPHY.

BY AN AMATEUR.

I take the liberty of forwarding to you specimens of "photos" of the late solar eclipse, with descriptive notes of the event.

The instrument by which they were taken, was made by myself from "odds and ends;" and any photographer can construct one of the same kind, at a cost not exceeding twelve dollars, in addition to what articles he has on hand. The only parts that he will have to purchase, will be two positive eye-pieces—Huyghenian—(A and B) of a microscope.

In 1866 I made a telescope of the kind described, but never attempted to use it in celestial photography. In July, of this year, I constructed another one, using diaphragms of lesser aperture, and succeeded perfectly in getting pictures of the sun. In the first taken, I found a peculiar purple and violet tint (like that made by "Purple of Cassius," in stained glass), which I at first attributed to a copper developer. I find it present in all when iron developer is used, provided they are not afterwards intensified.

Many facts, regarding the sun's spots, might be obtained, if every amateur and every lover of science would construct an instrument after my method, and take one perfect negative on the first clear day in each week throughout the year, and make prints of the same, and forward one of each to the Smithsonian Institute, for comparison.

In five years there will be a transit of Venus, and by the cooperative means which I have indicated, and by a correct system of chronometery, facts may be gained that will render the measurements of astronomers yet more exact.

Eight years from that time and there will be another transit of Venus, and then, alas! not one person now living will behold it again.

A hundred and twenty-one and a half years will go by before a like event will take place.

We may, thus, by the automatic handwriting of light, contribute to science facts of value, though we may be neither learned nor scientific ourselves. And our labors will be reactive. It is impossible for any man to pursue the course I have indicated, without an enlargement of his intellectual capacity.

In the name of a higher grade of manhood, and a more perfect civilization, let me ask all, both amateurs and professionals, to give a little time to the more abstract capacities of the art. There are secrets in it, yet undreamed of, and one step up the ladder of light, will lead to another, until the glories of God's universe will hymn their symphonies to the ears of an admiring world.

For description of apparatus and other phenomena, see accompanying article, quoted from *Cincinnati Daily Gazette*, August 11th, contributed by myself.

Preparation had been made some weeks ago for photographing the eclipse in its progressive phases. A telescope had been constructed by myself upon an empirical formula, which had a very short focal distance, which is an essential quality in an instrument mounted without clock-work. The material used consisted of the following pieces: The optical part, one-half size photographic tube (Harrison's make), two eye-pieces (A and B), positive Huyghenian, made for microscope by Grunow, the whole mounted as follows:

A tin tube, about six inches in length, blackened on the inside, with a calibre large enough to take in the eye-pieces, was used to hold erector and eye-piece. The erector was the "B" eye-piece, with the part used by the eye in the microscope, presenting at the end of the tin tube. The "A" eye-piece, which was also the eye-piece of the telescope, was in the same position at the other end of the tin tube.

The half-size photographic tube, with all of its lenses untouched, was mounted at the end of a sheet-iron tube, of sufficient calibre to allow the flange of the lens tube to be screwed fast to a wooden hoop in the end of the sheet-iron tube. The length of the sheet-iron tube was about fourteen inches, and had two wooden disks, which fitted the end and interior perfectly. These disks had each a hole in the exact centre, which allowed the tin tube, which contained glasses previously described, to slide into the body of the sheet-iron tube. The distance between the small glass, in the tin tube (erector), and the compound filled lens (half-size photograph), was half the conjugated focus of the two sets. This has to be found by trial, but is not very difficult. A disk must be inserted in the tin tube, about the middle, with a small hole in the centre. The hole may be a half-inch in diameter. This serves to cut off the outside rays of the erector, and also stops out any reflected light. The inside must be blacked in every part except the glasses.

A telescope of strong magnifying power, and good definition, is thus constructed out of odds and ends.

The thumb-screw of the front tube serves to focus the instrument.

The camera box belonging to the tube was screwed fast to a board as long as the box and tube, and the axis of the tube brought opposite the centre of the ground glass, and then the tube was made fast to a set of cleets fastened to the board.

I am thus minute in describing the construction of the instrument, for the reason that it is capable of making excellent pictures of the moon, and may be used for other distant objects, if they are well lighted. The board, with box and tube was mounted in the same manner that the ordinary photographic instrument is, except a very long elevating screw replaced the ordinary screw, to incline the apparatus at any angle. A common tripod stand was used to hold the apparatus. As the sun declined, a turn of the screw to the left would depress the instrument so that his image was sharply cut on the ground glass the whole time of observation.

The preparation and exposure of sensitized plates does not differ from that in ordinary photography, except the light is only admitted the smallest fraction of a second, when taking the sun.

In taking pictures of the moon, the time of exposure would be a half minute or more. Pictures of the sun, from three-fourths of an inch to two inches and a half in diameter, may be taken by the apparatus described. I have pictures that large.

Through the kindness of Mr. Baldwin, the accomplished photographic artist of Bedford, I had the use of his gallery, and also his assistance in making the series of pictures of the eclipse.

Dr. Blackwell made the notes, and gave the time of obscuration of each picture, and Mr. Thomas Thornton examined and called the temperature of wet and dry thermometers at each exposure of the plates. He also passed the plates to and from me to the dark-room, where Mr. B. coated the plates and developed the pictures. An unobstructed view of the sun was obtained from the door of the gallery opening to the west, from which extended a platform landing, and stairs to the ground, one story below.

Twenty-one pictures were taken, seventeen before and during totality, and four after. Two attempts during the total phase were failures, but one other gave the bright prominence before described.

An idea of chilliness seemed to possess most of the observers, but the thermometer only indicated a change of temperature of three degrees in the shade.

The last moment of contact was not noticed, but was about 6.21; making a total, between first and last contact, of two hours.

The picture of totality only shows one of the protuberances from the sun. From a comparison of its length with the sun's diameter, it seems to be somewhat more than two hundred thousand miles in length. The photograph marked "K," is an enlarged print of some made from negative raised by microscope. It does not show the entire length of the fan-shaped expansion.

Up to totality, we used a card over the front of the lens, with a perforation of half an inch in it. This we forgot to remove when obscuration became total; hence the failure to get a picture of the corona.

Unfortunately, there is no way of remedying mistakes of that kind; and, alas! few of us will be on hand to manipulate the next solar "total."

The instrument which I have described, will give a range of images from four inches in diameter, down to an almost invisible smallness. To get the largest size, a 4-4 box must be used. The front screw adjusts the focus.

Hoping that others may be profited by my success,

I am, very truly,
Your obedient servant,
J. Gardner, M.D.

Bedford, Ind., Sept. 13, 1869.

P. S.—The telescope described, shows Saturn's rings handsomely.

Dr. Gardner's prints are very interesting, and his paper will be read, doubtless, with great interest and profit.—Ed. P. P.

VARIED TONES, AND HOW TO GET THEM.

Having had a number of inquiries in relation to the different tones produced by the several chlorides, I send the following, hoping it may be found very valuable to workers on plain paper, also to those albumenizers who are not posted. And here allow me to remark, that it would be greatly to the advantage of those who albumenize paper for the trade, if they would stamp, or, in some manner, state how, their paper is salted. By so doing, it would do away with the great number of complicated toning baths, which the toner now has to get up for producing the particular tones wished. The following list of the salts which will give the best effects (selected from a large number of combinations), will show the variety of tones produced. Prof. Hunt is entitled to the credit of first making these experiments: Muriate of ammonia, red changing to black; chloride of sodium, red changing to black; muriate of strontia, a fine brown; muriate of baryta, a rich brown inclining to purple; solution of chloride of lime, very red; solution of chloride of soda, brick red; iodide of potassium, yellowish brown; chlorate of potash, variable, sometimes yellowish, and often a steel blue; phosphate of soda, mouse color; tartrate of soda, dark brown; urate of soda, yellowish brown; muriate of iron, deep brown which blackens; bromide of sodium, red brown of a rich tint. The muriate of ammonia is the most sensitive, and bromide of sodium the least.

J. H. Hallenbeck.

THE FOREIGN PICTURES,

SENT TO THE

National Photographic Exhibition.

Had sufficient notice been given in time, we believe enough examples of work would have been sent from abroad to *fill the hall* in which the late Exhibition was held. But the notices which were scattered among English, French, and German Photographers, although seconded and repeated in the *News* and *Mittheilungen*, by our friends Mr. Simpson and Dr. Vogel, were so late that many who *would* have contributed were kept from doing so, and several who did send, were too late.

Several parcels came to our hands after the Exhibition closed, as we have before stated; and as they could not be seen, a few descriptive remarks concerning them may be interesting, with a few comments on *all* the foreign pictures sent for exhibition.

The most extensive display was by M. Chas. Reutlinger, Paris, which consisted of four large frames of Cabinet Photographs, and 11 x 14 size. M. Reutlinger's style is one quite peculiar to himself. His pictures bear the impress of their producer upon them. They could be told from others anywhere. Our readers have already been made familiar with his method of working by his own papers contributed to our pages. He resorts to anything that will improve his work. His negatives are generally retouched, and much to the improvement of the proofs. His draperies are rich and elegant—as much so as anything we can find in photography—full of roundness, texture, and free from offensive lines and heavy shadows. Every dress is a study, and silk is rendered as silk, velvet as velvet, and cloth as cloth. His positions are always fine and worthy of study. There is intent and purpose in them all and much to be learned therefrom.

M. Reutlinger's pictures were in the Exhibition, and were among the greatest attractions. They may be seen in one of the stereos taken and sold for the *Relief Fund*, and his examples are also for sale.

Messrs. Lœscher & Petsch, Berlin, Prussia, also made a very fine contribution in addition to what were on exhibition. They make some exquisite work which is hard to excel. Their work is of a style peculiar to themselves. They are true artists in feeling, and express it in their productions. Their posings are graceful and fine, and compositions always well studied and artistic. Their 8 x 10 photographs are particularly fine; a group of a mother and daughter, and another of a gentleman and lady at an easel, being full of instruction and great merit. Their *cartes* of children are truly made by men who know all the winsome ways of the little ones, and those of ladies are generally large heads from negatives carefully retouched. Their "Gems from German Life," stereoscopic size, excel anything of their kind. They are groups of figures showing domestic and other scenes, so natural and so fine, so exquisitely photographed, they must have a large sale in this country, for they are not only of subjects familiar and sometimes touching, but they are so exceedingly well done that they must render good and great instruction to all who study them. They are now obtainable in this country. The tones are rich and brilliant.

Mr. Ernest Milster, Berlin, also sent a large lot of 8 x 10 prints, one of which we consider the finest photograph we have ever seen. Mr. Milster retouches his negatives with the utmost care, thus securing effects which no amount of retouching on paper could effect. His prints are of a rich warm tone, and perfect as such.

He also sends a number of cartes, cabinets and reproductions of celebrated paintings. These specimens he offers for sale in our Special columns. They are admirable. We confess to a great fondness for the German style of work, and should like to see many imitators in this country.

Messrs. Benque & Sebastianutti, Trieste, Austria, forwarded some large bust pictures of Admiral Farragut and other naval officers who visited that city some time ago, which are again very different from the other pictures sent. They are apparently from very finely worked up negatives, the high lights of the prints also strengthened with white paint, and the whole covered with a fine encaustic paste. The effect is very pleasing, soft, and peculiar. A group of Minstrels, and a "Venus," by these gentlemen, are also admirable specimens of photography.

Dr. Vogel contributed a very interesting series of views among the catacombs in Egypt, which are very excellent, some being taken aided by magnesium light. Dr. Vogel has himself described his method of making them.

These gentlemen all showed great interest in our Exhibition in taking so much trouble to send such specimens of their work. We wish that all of our readers could see and study them. We believe it would result in a great improvement of the present photography of this country. We know we have some good operators, and good pictures are made here, but not enough. The great want here is *artistic feeling*, and *culture*, and thought and care in working.

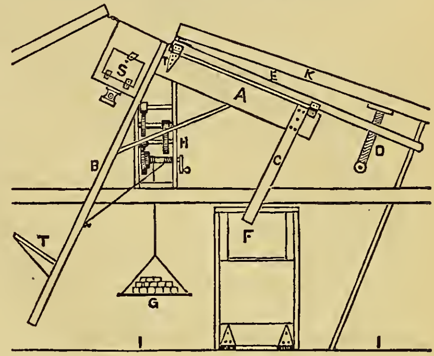
We all have much to learn yet, and our foreign craftsmen in many respects are far ahead of us.

We hope for a fine foreign display at Cleveland, next June, and we also hope many will flock there to see it.

The photographer's first law,—be cleanly.

TURNBULL'S SOLAR CAMERA.

I inclose a rough drawing and description of a solar camera, which I have just finished making, and am so well pleased with its operation that I have concluded to send you a description of it. I use it in the loft of the building; the building stands east and west, and has a shingle roof sloping to the north and south also. Just under the cone of the roof, on the south side, I cut out a hole large enough, through which the camera points toward the sun. In the drawing, A, B is the frame of the camera hinged to a piece of wood, E, by the hinges as shown. The piece, E, is hinged to the roof at the upper end, and regulated by the screw, D. Now, it is evident that when the camera is set by the screw, D, so as to point to the sun, that it needs only one motion, and that sideways; and, the angle being right, it will follow the sun's path. Thus, I need but one motion. Now then, I made a large clock of wood, H, which, when the camera is on the sun, keeps it there, and needs no attention until the picture is done. S is the camera-box with the lens, negative, and tube. T is the screen on which the paper is placed. Around the top of the box and against the roof, I tacked several thicknesses of cloth, which allows the camera motion, but keeps out the light. F is a box attached to the top of a frame hinged to the floor, and then connected by a lever to the piece, C. This box (filled with bricks), balances the camera, so that it will set any place that it is wanted. The room is kept dark, so the camera needs no box to keep the light from the paper. G is



the clock-weight, H the rafter, and I I the floor. The whole works perfectly, and the steady motion given to it by the clock-work, produces prints much superior to the old way, and I can attend to other work while it is printing.

If you find this worthy, you are at liberty to give a description for the benefit of the fraternity. A. E. TURNBULL.

UPPER SANDUSKY, O.

BOSTON PHOTOGRAPHIC ASSOCIATION.

THE regular monthly meeting of this Association was held at Mr. Black's studio, on Tuesday evening, September 7th, 1869.

President Loomis called the meeting to order.

Records of the last meeting were read and approved.

Messrs. Southworth, Low, and Wing were appointed a committee to take charge of the procuring of certain affidavits, requested by Mr. Lovejey, of Stepney Depot, Connecticut, to be used in his case with the Shaw and Wilcox Company.

Mr. Loomis presented a letter which he had received from the father of the Meade family (who were pioneers in the early Daguerreotype business in this country) asking aid.

Requested any present, wishing to contribute to his relief, to hand their contributions to our Treasurer, Mr. S. Wing.

The subject of discussion for the evening was "Collodion." Remarks were made by Mr. Black, Mr. Tupper, Mr. Wing, Mr. Loomis, Mr. Marshall, and others.

Incidentally, during the discussion on collodion, the use of albumenized glass in making negatives, was brought up, and it was highly recommended by very many present. About half of those present use it.

On motion of Mr. Tupper, it was voted that we occupy these rooms for our future meetings, with the consent of Mr. Black, and that the Executive Committee approve the bills therefor.

The question: The art of getting business. Who in Boston get it, and why? And how shall we all do it? was then discussed.

The President asked Mr. Black what he thought was the best way to get business? His answer was: "Make good work."

He was followed by Mr. Loomis, who presented the subject in a variety of aspects.

Remarks were also made by Mr. Southworth and others.

The President reminded the members to bring specimens of their work at the next meeting.

Mr. Black suggested that the pictures be brought unmounted, so that they may be placed in a book prepared for the purpose.

On motion of Mr. Tupper, it was voted that a book be procured.

On motion of Mr. Black, it was voted that Mr. H. W. Tupper be a committee to procure a book suitable for the purpose.

On motion of Mr. Southworth it was voted to adjourn.

FREDERICK C. LOW,
Secretary.

P. S.—Our meeting was very largely attended, and a number of new members joined the Association. Some very fine pictures were shown by some of the younger members, and great improvement is being made by members of the Association, who say that the incentive was their seeing the fine work at the National Exhibition.

NORTHERN OHIO PHOTOGRAPHIC SOCIETY.

THE Northern Ohio Photographic Society met at E. Decker's rooms, in Cleveland, August 5th.

It being the annual meeting of the Society, the following named persons were elected officers for the ensuing year: President, J. F. Ryder; Vice-Presidents, E. Decker and J. S. Mason; Secretary and Treasurer, J. C. Potter.

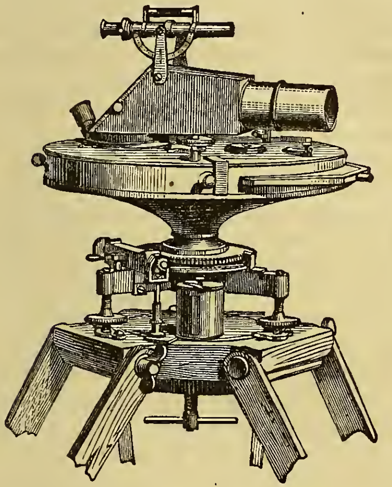
Our Society is getting accessions to its numbers, our meetings are very well attended, and our discussions are usually very interesting and instructive. There is a better feeling existing among our photographers in this vicinity than there ever was before. We have begun to learn that artists have a common interest, which can be best subserved by meeting together once a month and interchanging thought.

I am, very respectfully,
J. C. POTTER,
Secretary.

PHOTOGRAPHIC PLANE TABLE.

WE have received, through the kindness of Mr. James Swaim, a pamphlet on the above instrument, invented by M. Auguste Chevalier, containing full descriptions of its working and construction, and illustrated by engravings and a photograph.

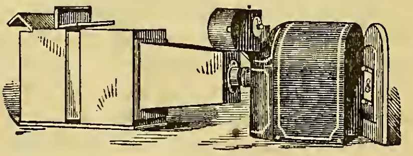
The accompanying woodcut represents an exterior view of the apparatus as given by the photograph. It consists of a photographic objective, behind which is placed a square prism, by total reflection from whose oblique rear surface, the image formed by the lens is projected upon a horizontal, sensitive plate set beneath. The lens and prism, as well as an opaque screen covering the plate, with the exception of a narrow slit in a plane passing through the axis of the lens and the centre of motion, rotate about a vertical axis in the middle of the instrument, being driven by appropriate clock-work. By this means, when the instrument is placed at one end of a base-line, adjusted, furnished with a sensitive plate, and allowed to make a total revolution, it will produce an automatic photographic horizontal projection of all objects within the panoramic field, from which their various angular relations may be determined with the greatest accuracy. It might seem that sharpness of definition was incompatible with a continuous motion of the lens, but the admirable panoramic pictures produced by the apparatus of Martens and of Garella, which operate on the same principle, are a complete and satisfactory answer to this objection.—*Jour. Frank. Inst.*



COPYING BY MAGNESIUM LIGHT.

ALL photographers have more or less copying to do. It is a work that requires a strong light, and as photographers are generally busy with living subjects when the sun shines, the copying often interferes or has to lag behind.

Now, however, thanks to the invention of Mr. G. K. Proctor, the rainy days and the nights, if necessary, may be utilized and all the copying, except from large originals, be done when other work *cannot* be done. The drawing below represents Mr. Proctor's apparatus. As will be seen, it consists of a little apartment constructed on the same plan as the night photographic apparatus of Mr. Proctor before described herein. The object to be copied is placed on the door or back-ground of the apparatus, which is provided with adjustable clamps to fit an object, say up to twelve inches square. This door may be moved to or from the lens as required to get the focus. There is a lamp inside to make light to focus by, and the magnesium light is fed by the clock-work outside, precisely the same as in the larger apparatus. The arrangement of the camera and lens is seen by the cut. It is a very useful practical little affair for those who copy from other pictures.



IF you wish to intensify, first wash off all traces of the developing solution.

OUR PICTURE.

Our readers will be gratified to find, in this issue, another capital example of the now well-established cabinet size, from the studio of Mr. William Notman, Montreal, Canada. No one has done more to popularize and dignify this beautiful size than Mr. Notman. He was the first to take it up and push it, and the first specimen of it we gave to our readers was from his hands.

In the present instance, he has made much of a charming, graceful subject. The prints were also made by him, but, being from different positions, we shall not have much to say on that score, except that they are all gracefully and artistically done, full of feeling and fineness.

Mr. Notman's style of working is peculiar to himself. He discards the method of making the picture hard and wiry, *i. e.*, excessively sharp, and, by taking the subject very slightly out of focus, arrives at a softness and fine pictorial effect which must grow more and more pleasing as one carefully studies his work. The blending of the lights and shades, it will be observed, is very regular and soft, free from abruptness, and yet there is no lack of good photography anywhere apparent.

The present picture was made with a No. 3*a* Dallmeyer portrait lens. After the prints were mounted they were treated with Mr. Notman's "Canadian Photographic Enamel," which is sold by his agents, as advertised herein. The effect of the polish or "enamel" is fine, giving not only great transparency to the shadows and brilliancy to the whole picture, but a protection to the print. Should carrying the prints through the mail tend to dim the polish, all its charm may be restored by a slight rubbing with a *woollen* cloth.

The use of some such paste, or "enamel," or varnish, is now quite common, but many inferior kinds are used, some prints which come to us being actually varnished with common gum varnish. There is nothing of the gum nature in this. It is not tacky or offensive to the smell. Its effect upon the prints is marvellous and beautiful.

Mr. Notman's formulæ and description of his sky-lights, we have before given. His pictures are always elevating, and we trust they will be carefully studied this month.

VOICES FROM THE CRAFT.

I wish to give you an instance of the benefit derived from being a subscriber to the *Philadelphia Photographer.* At least it would have proven so in the one instance I am about to refer to.

Last winter, our stock-dealer, as you are aware, sent in a list of names as subscribers to the *Philadelphia Photographer.* But at least one photographer in the place would not subscribe, as he said, at the time, he could not afford it; and further, that he could derive no benefit from its pages, as he knew all about everything published in the Journal. So he did not take it.

Now comes the point in proof of his wisdom.

About three weeks since, he purchased the transfer process published in the *Photographer* some time since. For this he paid $15. Nor was this all. Some ten or a dozen days since, more or less, Wilson, the "Hallotype" or "Diaphan" man, whom you alluded to in your July No., and whose process Dr. Towler so well describes, called upon the individual alluded to, and sold him the process for $25! Now, here was eight years' subscription to the *Photographer*, thrown away on useless or worse than useless processes, and that, too, by a man who was so *well posted* that he could get *no benefit* from the *Philadelphia Photographer!*

I submit the above for what it is worth; and you have my permission to make what use of it you deem best.

Yours truly, H. L. B.

Michigan.

There are many who "know the whole thing" in our profession; and the *knowing* ones, strange to say, generally get the worst bitten.

A photographer, in these enlightened days, is not safe without a good journal. It is his watcher and protector.—Ed.

Injustice to Stereoscopic Photographers.—I am often pained at the injustice to photographers by stereoscope manufacturers, and I cannot see where the economy lies,—the lenses are not wide enough to allow the eye to see the whole of the picture. It stands to reason, that if the eyes are on an average two and a half inches separate, that the lenses in the scope should be wide enough not to obstruct the eye from viewing the whole of the picture. Most of the Holmes' scopes allow the eye to view but one and a half inches in relief, in the centre of the picture. I have separated such lenses to correspond with the eyes, and the result was perfectly satisfactory to a person that could not before see the picture without unpleasantness.

A little more care on the part of the manufacturers, would greatly enhance the sale of such stereoscopes, and would not only be an advantage to them, but also to stereographic photographers.

Who will make us a perfect instrument?

H. Noss.

We think our correspondent has been unfortunate in his selection of his "scopes," as we find no trouble in getting excellent ones in this city.—Ed.

"Diaphan."—In your July No., I notice an article from Prof. Towler, having for its object the exposure of a coloring process by a Mr. Wilson, lately from Europe.

The Professor has made a most singular mistake, as his exposure has no bearing whatever on the process in question, which I have bought from Mr. Wilson, and must confess that it has given me the most complete satisfaction.

Professor Towler may, in the course of time, come into possession of said process, but it would not be of any service to the fraternity to publish it, as it requires to be seen to be brought into practice. But he would decidedly injure those who bought it, because the publication would bring forth poor attempts, which would certainly put this style of picture in contempt with the public, and spoil the business of those who legitimately hold the process.

Mr. Wilson acts honorably, and is well recommended; and I think his process should be respected, as it does no harm, and is no loss to the artists who buy it, for their money is more than returned by the sale of two or three pictures.

It is nothing but fair that both sides of this case should be known, and by giving this an insertion in your next number, you will greatly oblige me and others who have bought the process. I am sir,

Most respectfully yours,
A. Billows.

Elkhart, Ind., Aug. 9, 1869.

It is but just to say, that Mr. Wilson's process seems easy when *he* works it, but after he is gone, those to whom he sells it find much trial and experience are needed before they can succeed, and regret the loss of their money. Therefore, we say, act carefully.—Ed.

WRINKLES AND DODGES.

Practical Silver Saving. — Almost every photographer has some special way of his own for saving silver from the developing solution, but I doubt if a more primitive or effectual plan has ever been hit upon than one adopted by a photographer, of no mean reputation, that I met during my travels this summer. The whole apparatus was nothing more than an *old felt hat* without holes, arranged upon a frame of four sticks over the developing tray, similar to a funnel. Plates were developed into the hat, which, from the porous condition of the felt, allowed all the solution to filter slowly through, but not before all of the silver had been precipitated by the continued action of the iron. After a season's work the hat was burned and the silver recovered. Simple, as well as effective appliances, are what photographers desire, and this certainly deserves a trial, even at the sacrifice of an *old felt hat.* John C. Browne.

How to Make an Opaltype on a Ferro Plate.—Take a quarter plate, coat and expose as for an ambrotype, then make a black blend on a quarter-glass with a candle.

Then place your blend over your plate, so that the black spot will cover the head and shoulders; expose to diffused light for two or three seconds, then develop, fix, and wash thoroughly. Now immerse the picture in the following solution, until the film assumes a pearly-white color, after which wash thoroughly, dry, color, and case:

SOLUTION.

Alum, ...	½ ounce.
Protosulphate Solution of Iron, .	½ "
Bichloride of Mercury, . .	½ "

Dissolve these in 4 ounces of water, then add ½ ounce acetic acid.

E. D. Ormsby.

Petaluma, Cal.

Permanganate of Potash for Correcting the Bath.—Though the following may not be new to you, still I think there are hundreds of your readers that would be thankful even for the little it communicates. I had a pint, or thereabouts, of a solution that no one knew the age of; pinholes and fog were the result obtained on a plate sensitized in it. There was just silver enough to make 16 ounces of a 35-grain solution, and I worked with it for several days, making an occasional negative and a good many small gems. All at once I found my new bath fogging. I tested it with blue litmus paper, and, as there was no apparent acid action, concluded it to be about neutral. This, I suppose, was brought about by using negative glass cleaned with bichromate of potash, and, such being the case, I thought I might mix the two baths and thus get a larger quantity of solution. I filtered the two together at night, after which they looked so beautifully clear that I congratulated myself for setting at naught all I had been told concerning such operations. Being much pleased, as soon as there was light enough next morning to warrant the operation, I dipped a plate, hung my hat on a head-rest, exposed and developed, but "nary" hat could I see, nothing but fog. What was I to do? Saturday, the best day in the week for work, and nothing to work with! Now I knew that a few drops of the following would clear a very dirty positive bath, then why not a negative bath?

Permanganate of Potash, .	15 grains.
Pure Water, . . .	4 ounces.

I poured into my bath about a teaspoonful of the above. In one minute it had the appearance of very dirty ink. I filtered it, after which it looked very yellow, and I was feeling about as it looked. I dropped in a little more of the permanganate, and set it in the sun for ten minutes. It then assumed a clear, bright pink appearance; I filtered again, and again set the solution in the sun. In fifteen minutes the excess of permanganate had precipitated in the shape of a black, gummy-looking matter. Just as it was filtered, a person came in in a great hurry for an ambrotype. I was all excitement. I coated a plate and placed my subject, exposed, developed, and the nicest chemical effect I had ever seen was the result.

I have worked that bath for six weeks, with all sorts of collodions, and only once has it given a foggy picture; then a few drops of the permanganate set it right. Sometimes a change of collodion will give a foggy picture; in that case permanganate won't help the matter, but a change of developer sometimes will; if not, go back to the old collodion, and you will get the same clean picture you had before the change.

I do not pretend to say that the above is all new to you, or, in fact, any of it, but I do say that, where you find one operator who knows the use of permanganate, you will find one hundred who do not.

Jno. J. Burk.

Sterling, Ill.

Smoke Condenser for the Magnesium Light.—A smoke condenser for condensing the smoke of burning magnesium, is simply a bag or drum made of common cotton cloth, about 48 inches long and 18 inches in diameter, distended by hoop-skirt wire. This is hung up in the room or laid upon a table or shelf, or even on the floor, though it is better to have it somewhat higher than the lamp. The chimney of the lamp is connected with the drum by a piece of tubing. Any person can make one.

The principle upon which they work is this: the smoke, consisting of the oxide of magnesium and common air, enters the drum, where the air separates and passes out through the cloth, leaving the oxide on the inside. The draft is very uniform, and the lamp burns much more steadily and reliably than without the *condenser*, as we call it. Now, you can take a magnesium lamp and lantern, and have an exhibition in any small room or parlor, without the least inconvenience from the fumes of magnesium. The photographers who use Proctor's apparatus should have these condensers.

They are manufactered by the American Magnesium Company, Boston, but are not patented, and any one can make them.

SALAD

For the Photographer.

Are you a member of the *National Photographic Association?* If not, *join.*

An example by Woodbury's process in our next issue, probably.

A subscriber says the *Philadelphia Photographer* is like a Thanksgiving dinner—all spread over with good things.

M. Lieber, founder of the *Moniteur de la Photographie*, and of the *Encyclopedie Photographique*, died in Paris recently.

Eclipse views for the stereoscope, from the Prof. Morton Expedition negatives, are now for sale by the dealers.

The Exhibition of the London Photographic Society begins November 9th, and of the Bengal Photographic Society, December 13th.

A neighboring artist used to call and get my Journals to read. Finally I declined, he smeared them so, but advised him to subscribe.

"Lord, no! If I could practise half I know already, I'd be satisfied."

He couldn't, it seems, for his gallery did not sustain him, and he has retired upon a government office. J.

"How to Paint Photographs in Water Colors," by George B. Ayres, gives all the instruction required by those who wish to learn the art of making the Diaphan or Wilson's Bellini picture. It is by far the best little work on water colors, and the art of laying them on a photograph, that I have seen. It is the work of a practical, intelligent artist.

Yours truly, J. Towler.

The following is a verbatim copy of a letter we recently received. Who would not edit a Photographic Journal?

"Will you please answer the following and I will try and not bother you again soon What benefit is their in adding Iodide of Lithium to colodion What good does Glycerine do the Developeing solution What good is their in flowing the plate with Albumen before entering the bath for Negatives Which should be the largest quantity used Alcohol or Ether for making Sumer colodion Which should the cotten be first put in, in making colodion the Ether or the Alcohol or Both mixed first before cotten is added What makes New colodion slip off the plates How can it be made to stick Can any thing be put in the silvering solution to keep the paper from turning yellow and how strong should the silver be to the oz What good is their in adding Nitrate of soda and Nitrate of amonia to the silver solution for silvering paper What good does alcohol do the Paper silver solution What benefit is amonia to the Paper silvering solution Which is best to use in the silver Bath for Negatives Glacial acid or Nitric acid Is it best to have the paper solution perfectly Neutral or not Which gives the best afect to Negatives to be cleared up in Cyanide or Hypo Soda

"My sky light room is 12 ft wide and 30 ft long the sky light at the highest part is 15 ft from the floor and the lowest is 12 ft from the floor from the above which is the best to use the most of Alcohol or Ether I have a North side light 8x10 feet the sky light is 12x15 ft you will please take your time and answer this as well as you can and you will gratley oblidge your ———

"Has Miss B. been in to-day to leave her measure for a porteygraph?" asked a hopeful Canadian of one of our subscribers.

"No, sir," he was answered. "Well, if she does come, please have her tooken with ringlets, a small waist, with ear-drops and a broach, and don't take any money from her. I will pay the bill." The photographer managed all but the waist when Miss B. came, but refused to waste his energies on that.

Editor's Table.

The Prizes.—The following awards have been made by the judges: For the best portraiture, to Wellington Watson, Detroit, Mich.; for the best landscape, to Mr. E. M. Van Aken, Lowville, N. Y.; for the best composition picture, to Mr. M. Griswold, Columbus, Ohio. The report of the judges and full particulars in our next issue. There were 38 pictures offered in all. Full sets mounted, $4.50. Mailed on receipt of price.

Our subscribers will please understand that our contributors cannot undertake to answer questions, and we hope they will not be asked to do so, as they have been lately. We gladly do all that ourselves.

Mr. A. M. Collins, 506 and 508 Minor Street, Philadelphia, has admitted his son, Mr. H. H. Collins, and Mr. Edward Cope, to an interest in his business. This firm manufacture photographic card-board more extensively than any other in the country, and are well known in the trade. They are able to cater to any taste.

While on the top of Mt. Washington a few days ago, we were greeted by Mr. S. F. Adams, of New Bedford, Mass., who is one of our subscribers. Mr. Adams has spent the whole season at the "Tip Top House," making stereoscopic groups of visitors. He has been doing well photographically and financially. He has fine negatives of General Grant and party, Gen. McClellan and party, and——us and our party, for copies of which we thank him. We commend him for his enterprise; for photographing *a mile and a half up* is no easy thing to do.

"Over the Sea" is the subject of an admirable composition picture by Mr. H. P. Robinson, a copy of which has been sent us kindly by Messrs. Robinson & Cherrill, London. It is a companion to "Returning Home," and from several negatives. We published Mr. Robinson's method of producing them in our August issue.

Mr. George Barker, Niagara Falls, N. Y., has favored us with a view of the Falls, about 12 x 20 in size, made with Johnson's Pantascopic Camera. It is particularly attractive on account of the wide extent of the views, and is also fine as a photograph. It shows *all* the Falls.

From Mr. J. Douglass, Quebec, we have a series of the views of the Eclipse, made by his party, and also a photograph of the group engaged with him. From Mr. J. W. Black, Boston, a series of views from his Eclipse negatives; and from Mr. W. C. Taylor, Philadelphia, an account of his expedition, which we have already alluded to.

Messrs. F. A. Pearsall and J. L. Forbes, with Messrs. J. Gurney & Son, Fifth Avenue, New York, have sent us some exquisite specimens of photography, which will be hard to excel, either in management of the subject or the manipulation of the negatives.

We have recently examined some pictures made by Mr. William Bell, of this city, by a process patented in April last by Mr. E. G. Fowx, of Baltimore. They have been named the "Porcelain" photograph, for they not only retain all the softness and delicate rotundity, which renders the photograph upon porcelain so charming and attractive, but they possess the advantage of being made on paper. From the specimens before us, we should think the style destined to become decidedly popular and acceptable, in good hands. We are told they can be produced with but little additional trouble or skill, and no more expense than the ordinary photograph, and so we imagine that our readers will hail with gratification the advent of "something new" to offer to their patrons. Mr. Bell is agent for Mr. Fowx in this city, and, desired information concerning the process, can be had from either party.

We regret to hear of the demise of Mr. D. W. S. Rawson, Peru, Ill, on the 24th August. Mr. Rawson was personally known to many of our readers. He was an amiable, energetic man, a lover of our art, and an old worker in it. His death is regretted by a wide circle of friends.

"Picturesques on the Pennsylvania Central Railroad."—This is the title of a series of stereographs of the grand and glorious scenery on the Pennsylvania Central Railroad. No more beautiful ride in the country is to be had than the one from Philadelphia to Pittsburg. It is full of choice river and valley mountain scenery, overflowing with food for the camera. The views before us are of some of the choice ones, from negatives recently taken by Messrs. E. & H. T. Anthony & Co., 591 Broadway, N. Y. They could scarcely be excelled as examples of good photography. They also publish an "Artistic Series" of the same views, which differ in size, being cut out 3⅛ wide by 3¾ high, thus giving more subject, and still suitable for the ordinary stereoscope. They are valuable views and must sell immensely.

THE

Philadelphia Photographer.

Vol. VI. NOVEMBER, 1869. No. 71.

Entered, according to Act of Congress, in the year 1869,
By BENERMAN & WILSON,
In the Clerk's office of the District Court of the United States for the Eastern District of Pennsylvania.

HOW TO PAINT PHOTOGRAPHS.

(SECOND EDITION.)

The Second Edition of this very useful book now lies upon our table, twenty-four pages larger than the First Edition, and in many ways much improved. This is by no means a reprint of the other. The author, Mr. George B. Ayres, has entirely revised it, and much of it is newly-written matter, and different from the other.

After placing his first book before the public, he thought of much that he wished to change, and much to add, to make the coloring of photographs an easy task to all those possessing any latent talent.

One very important chapter, which he very plausibly considered as coming within the scope of the book, has been introduced, which is alone worth what is asked for the whole work. We allude to the one on *Retouching Negatives.* In this he has been assisted by Mr. William Kurtz, the accomplished artist; and the result is, a plain, practical chapter of suggestions, that make the work comparatively easy. Retouching negatives is becoming a popular method of increasing their beauties, and likewise the excellencies of the prints. Many of our first artists have been retouching all their negatives for some time, and find that it enables them to hand better work to their customers, not only, but to consistently ask a better price, which is willingly given. This is, no doubt, to be the coming innovation in photography, and he who gives it the most and best attention, is the one who will first reap the reward.

Mr. J. F. Ryder, of Cleveland, Ohio, has gone so far in this matter as to import an artist for this special work, from Germany, and has found it a profitable investment. He has made us some excellent negatives for a future issue of our Journal, two pictures of the one subject, on the same negative, one end retouched and the other not. The prints will appear soon.

With a fine example of work before them, and with Mr. Ayres' book in hand, photographers will have little difficulty in improving their pictures, and in getting better prices for them.

The First Edition of *How to Paint Photographs,* was sold (1007 copies) in a little over three months after its issue. The *Second* was called for at once, but the author preferred to revise it, as we have stated, and hence the delay in issuing it.

Not only was its sale a great compliment to it, but its popularity is still further evinced by the fact that *over five hundred and fifty copies of the new edition* are already sold. The trade is *hungry* for it, and will now be gratified.

As we have before said, the author's style is so plain and concise that, in reading his book, one really feels as if he were sitting at his easel, close at hand, practically demonstrating what he so aptly teaches. As his every-day work *is* at the easel *painting photographs*, this impression is easily understood.

We are sure his Second Edition will meet with all the encouragement that the first did, and all his geniality and genius deserves, and that he will before new year's day, be called upon for the *third.*

AWARD OF THE PRIZES.

In response to our offer of prizes made some months ago, for the best two negatives and prints of three different styles of photographic work, a number sent negatives and prints, there being competitors for all the prizes The time for receiving the same ended Sept. 15th, and the examinations were made by the judges some days afterwards, but too late to get their report in our last issue. We append it to this.

As the examinations were made by the judges without knowing who made the work, of course their judgment is given fairly and impartially. Their task was no easy one. As many did not state for which prize they desired to compete, *i. e.*, the *genre* or portrait style, the judges had to assort the work according to their ideas. They were also compelled to judge *between the pictures sent for competition*, and not between them and *other* work with which they might be familiar.

What they had to do, then, was to divide the examples of work into the three classes, and taking each class by itself, say which of this class is best, and to be awarded the prize? To decide that question was, in one or two classes, not easy Chemical manipulation, lighting, composition, and printing, all had to be considered, and we believe it has been well and fairly done. We are glad, too, to be able to concur in their decision, that the work sent by the parties to whom they have awarded the prizes is the best of the class to which it belonged.

We regret, of course, that there were not more competitors, though the number is greater than last year. The portrait and *genre* branches both show some very clever work,—work that convinces us that those who made it are *trying* to do well, to say the least. All through it we can see what and where the effort has been made, and to such we say, *go on.* But the landscape department is most disappointing to us. There are thousands of good negatives stored away that are infinitely better than those sent to compete for our prizes. We thought our offer was liberal enough to induce those who thought of competing for the prizes at all, to make some effort to get something good. Although one of them was certainly better than all the rest, yet it is so devoid of interest and beauty as a subject, that we cannot feel justified in using it as "our picture." This we regret, for we very much want a good American landscape for our journal, and we very much want to see this branch of our art improved.

We do hope that when our next offer is made, that a liberal prize will induce an honest and liberal effort to win it, much beyond the mere pointing of the camera out of the studio window.

We did not invite competition to criticize, however. The judges have briefly added their comments upon all work sent. What we desire is, to encourage effort to produce good work, and to secure negatives from which to print for our journal. We are doomed to disappointment this time in the landscape department. Mr. Griswold's picture is being printed for an early issue, and Mr. Watson's will follow. All the successful competitors have chosen a gold medal instead of the money offered. Consequently we are having dies sunk of a neat and appropriate design for the purpose, and in our next will probably present our readers with a cut of both sides of the medals. We intend they shall be handsome, and will soon give others a chance of winning duplicates of them.

In order that all who wish may study them, with the remarks of the judges thereupon, we have prepared ourselves to furnish sets of prints from all the competing negatives. They will be found of much value to those who can learn from the faults and excellencies of the work of others, besides making quite a nice collection of prints. There are thirteen *genre*, sixteen portrait, and *seven* landscape subjects,—thirty-six in all,—which we will mail, nicely mounted, and the names of the competitors on them, postpaid, on receipt of $4.50. Those who do not desire all, can have the *genre* set for $1.75, the portrait set for $2.25, and the landscapes for $1, postpaid.

We offer them thus low that they may become widely distributed, studied, their short-comings avoided, and their good points emulated. Sets are now ready for immediate transmission.

In our next issue, we shall probably announce our next offer of prizes. We now append the report of the gentlemen who so kindly acted as judges.

Mr. Edward L. Wilson,
Editor Philadelphia Photographer:

Having been appointed by you to examine the negatives and prints placed in competition for the several prizes, viz., Portrait, *Genre* or Composition, and Landscape, offered by you, and to act as judges of the respective merits of the same, would respectfully report, that we have carefully examined all of the negatives and prints of the competing parties, and have awarded the prizes as follows:

The Portrait Prize to Mr. Wellington Watson, Detroit, Mich.

The *Genre* or Composition Prize to Mr. M. M. Griswold, Columbus, Ohio.

The Landscape Prize to Mr. E. M. Van Aken, Lowville, N. Y.

The quality of the work offered for competition was, as a general rule, not as good as it should have been. The portraits, with few exceptions, were not up to the standard.

The *genre* or composition pictures were, as a class, the best. In the department of landscape, there was little evidence of the exercise of taste and skill in any of the works sent in, either with regard to choice of subject or chemical manipulation, the best one not being above mediocrity. The committee award the prize for it, as instructed by you in your offer, it being the "*best one sent*;" yet, as an instructive and meritorious example of photography, they do not think it worthy of a prize or insertion in the *Philadelphia Photographer*. Had the committee been left to their own judgment in regard to the quality of work necessary to win the prize, no award would have been made for landscape photography.

The following is a list of the competitors for the different classes of work. We were in ignorance as to *who made* the examples placed before us, until after our examination of them had been made. Your instructions being to award the prizes for the best two negatives and prints of their class, we have so done, and hope our decision will meet the approval of all concerned.

COMPETITORS FOR THE PORTRAIT PRIZE.

Messrs. Tripp and Schellhouse, Cold Water, Michigan. Two double cabinet size negatives, 8 x 10 glass. Subject, a young lady. First-rate chemical work, clean and forcible, although a trifle over-lighted. It was an oversight in the arrangement of this otherwise excellent picture to allow the feet of his subject to be lost in the heavy shadow on the floor. Excellent prints accompanied the negatives, well toned and very creditable. Care and cleanliness are doubtless both practised by these gentlemen.

N. P. Jones, Madison, Wisconsin. Two 6½ x 8½ negatives, with prints, three-quarter length. Standing portrait of a lady. Composition fair only. A long line of shadow in front of the subject is bad. Both negatives clean, but lacking in force, due probably to a weak bath and under-salted collodion. These negatives would give better prints than those sent.

T. R. Burnham, Boston, Mass. One double negative, 8 x 10, cabinet size. Vignette prints of a lady. Chemical manipulation clean, but over-developed. Prints good. Far behind Mr. Burnham's picture for which he obtained the last prize.

Wellington Watson, Detroit, Michigan. Two cabinet-size negatives, on 6½ x 8½ plates. Subject, three-quarter figure of a lady sitting. The work of this gentleman shows a high order of merit, and great neatness in manipulation of the negatives. They are well lighted and full of delicacy and power The composition is graceful and varied. Mr. Watson has gained nothing, however, by introducing the table on the right side of one of the pictures. A more continuous flow of drapery would have added much to the improvement of the picture. The prints are very superior.

Lee & Edmundson, Norwalk, Ohio. Two 6½ x 8½ negatives of a lady, ¾ figure. The negatives are clean, but under-exposed. The arrangement of the figure has had but little attention, and is poor; the accessories are misplaced, and the light too evenly diffused, producing lack of contrast.

Manly Gaylord, Medina, N. Y. Two negatives, 4½ x 6½, of a lady. Made with a lens of too short focus. Not sharp. The prints are very good from the negatives.

C. W. Tailman, Middleport, N. Y. Two negatives of a child, on plates 5 x 7. Both faulty, in being distorted by the lens (see the hands); also over-timed. They show an overworked bath and too much intensification.

Thomas Walter, Norfolk, Virginia. Two cabinet negatives, on 6½ x 8½ plates. Subject, a standing figure of a lady, fairly arranged. The negatives are very unlike in their strength, one being much over-intensified, producing very strong high lights, and the other hardly up to fair printing strength without intensification. The prints are good considering the negatives, which are on dirty glass.

C. T. Neal, Fredericktown, Ohio. Two cabinet negatives, 5¼ x 7, of a lady, ¾ figure, sitting. The negatives give evidence of a weak and foggy bath, and the prints, of course, are wanting in contrast and brilliancy.

William Robert Brooke, Bristol, Ind. Two negatives, on 4¼ x 5½ plates, showing the misuse of sulphuret of potassium. Mr. Brooke has inclosed his prints with very pretty mats, made by his own hands; but had he spent less time on them, and more in manipulation, it would have brought him nearer to the prize. The pose of the figure is creditable, and the effect of light "Rembrandtish."

B. E. Hawkins, Steubenville, Ohio. One whole-plate negative and print of a little child; but, being unaccompanied by a duplicate, is inadmissible.

Thomas Cummings, Lancaster, Pa. Two cabinet portraits of a lady, full figure, sitting, on 6½ x 8½ plates. Showing fair chemical manipulation. Composition studied, easy, and fair. The negatives are intensified. Mr. Cummings appears to be working under a weak light, and his negatives consequently show lack of vigor and effect. Prints are good comparatively.

E. B. Ives, Niles, Michigan. Two cabinet portraits of a lady, on glass, 5¼ x 7, with very dark hair and a white dress, making a difficult subject for the camera, which the under-exposed face and over-exposed dress plainly shows. For such a combination, less light upon the dress would be better; and then the lingering beauties here and there, almost killed by over-timing, would have remained in full vigor. The prints are not as good as the negatives will make, being considerably under-printed.

D. C. Pratt, Aurora, Ill. Two cabinet negatives of a lady, on 6½ x 8½ glass. The manipulation of the plates is cleanly and excellent. The delicacy of the work is uncommonly fine. The arrangement of the figure shows good taste and skill, the long lines in the background being the greatest fault apparent. The prints are excellent.

J. B. Leisenring, Galesburg, Ill. Three negatives of a lady, full figure, sitting, on 6½ x 8½ glass. The negatives are very rich without strengthening. Although two of them are slightly under-exposed, the negative bath was in good condition. The prints are rich and brilliant.

L. Forest, Toronto, Canada. Two whole-size negatives of a lady, showing very delicate, pretty photography, but rather faulty arrangement of subject. The light is almost too much diffused. The prints are excellent, although a trifle lighter printing would be advantageous.

W. Aitken, Millville, N. J. Two whole-size negatives of a lady, ¾ standing figure. The plates were dirty when coated, carelessly manipulated, and excessively strengthened with bichloride of mercury. The prints are better than could be reasonably expected from such negatives, but are rather flat.

COMPETITORS FOR THE LANDSCAPE PRIZE.

Thomas Walter, Norfolk, Va. Two whole-plate negatives, very much under-timed, of a long, rambling view of no interest, and out of focus. Manipulation good.

W. Aitken, Millville, N. J. Two whole-plates of a river scene, having the elements of beauty very apparent, but both negatives spoiled by intensifying with sulphuret of potassium.

Donald & Kline, Huntingdon, Pa. Two whole-plates of a badly-selected view of no particular interest. The photographer is better than the artist. With the exception of slight over-exposure, the negatives are good, and the prints soft and fine.

Ira B. Sessions, Olivet, Mich. Two whole-plates of a badly-selected view, under-exposed, out of focus, and far behind.

T. Lilienthal, New Orleans, La. Two whole-plate views in a cemetery. Good negatives, but too strongly intensified. Prints good.

W. R. Brooke, Bristol, Ind. Two 4¼ x 5½ negatives of a little lake and surroundings, but spoiled by immense buildings in the foreground, which occupy two-thirds of the picture. There is nothing of merit in the view, but the negatives are monuments to sulphuret of potassium.

E. M. Van Aken, Lowville, N. Y. Two whole-size negatives, of a rather pretty falls, with bridge and mill at the top of same. The view is chosen with little judgment, however. One negative is fair in quality, but the other is spoiled by under-exposure, and after-attempts to redeem it by intensification.

COMPETITORS FOR THE GENRE OR COMPOSITION PRIZE.

B. E. Hawkins, Steubenville, Ohio. Two half-size negatives of a gentleman. One position smoking, the other reading. Under-exposed, over-developed, and an effort to resuscitate with sulphide. Prints weak and over-toned.

Manly Gaylord, Medina, N. Y. Two 4½ x 6½ negatives of a group of four ladies, pretty well arranged, but very badly focussed; the plates under-timed, but otherwise well manipulated. The lighting is bad, being too even, and the prints without contrast and badly toned.

Thomas Barbour, Yarmouth, N. S. Two whole-size negatives of a group of five ladies. The photography is scarcely above mediocrity, lacking in almost every good quality. The faces of the ladies are distorted by the blaze of light, as well as are all the fine details. The prints are also inferior.

C. C. Sherwood, Peekskill, N. Y. Two whole-size negatives of two Misses. Intensification has again spoiled what were two very good negatives. The arrangement is creditable, and the prints as good as could be expected from the negatives.

L. Forest, Toronto, Canada. Two whole-size negatives of a group of three gentlemen. There are a great many delicate beauties about these negatives, but they lack vigor and power. The subjects are artistically posed, but the light is too weak and diffused. The prints scarcely as fine as the negatives seem to promise.

G. L. Crosby, Hannibal, Mo. Two cabinet-size negatives of a lady. Showing delicate workmanship, but still lacking force and contrast, on account of the even diffusion of light over the whole picture. The posing and arrangement of the foreground accessories is good, but the background very bad. The prints are creditable.

Folsom Bros., Brewster, N. Y. Three 6½ x 8½ negatives, very weak, showing the chemicals to be in bad condition. The lighting of the figure is also bad, but the posing is commendable.

W. P. Jones, Madison, Wis. Two 6½ x 8½ negatives of a group of sportsmen. Chemically speaking, this is a work of considerable merit; artistically, it is below zero. There is a total absence of motive in the work, as illustrating either incident, character, or sentiment; and it is wanting in both truth and nature, for the sportsmen are amateurs and the forest is painted. The manipulation of the negatives is good, also the prints as good as could be.

J. Inglis, Montreal Two negatives, 4¾ x 6½, of little children floating a boat. The negatives show a high order of photography. The subject is almost too ambitious for photography to reach. Prints excellent in every way.

D. H. Spencer, Hudson, Michigan. Two negatives, cabinet size, on 6½ x 8½ glass, of a lady seated. But very little intention or feeling shown in the composition. The chemical effects are excellent, though the negatives are barely exposed long enough. The prints might be better.

Lee & Edmundson, Norwalk, Ohio. Two whole-plate negatives of a young lady, one impersonating "The Gleaner," and the other called "Autumn Fruits." The arrangement of both is full of merit, reflecting great credit upon both photographer and subject. The negatives are of good quality, and the prints excellent.

Vail & Elton, Palmyra, N. Y. Five 4 x 4 negatives, forcible and of good quality. The subject, however, is arranged without intention or feeling, being of a gentleman apparently left out in the cold. The photography is much better than the artist in this instance. The background is a coast scene, while the accessories in the foreground are rustic. With a different background, the effect would have been fine.

H. Merz, New York. Two 8 x 10 negatives, cabinet size. Subject, "Love's Messenger." Very masterly work, both in manipulation and design. Much propriety and judgment shown in choice and arrangement of subject. Prints excellent. This was second to the prize picture.

M. M. Griswold, Columbus, Ohio. A double cabinet negative, on 8 x 10 glass. Perfect chemical manipulation. Shows great skill and care in the arrangement of the picture. The subjects, two children, engrossed in the enticing sport of blowing soap-bubbles, are admirably rendered. But a single fault is worthy of criticism. One of the children, a little girl, is holding the tongue of a miniature wagon in her hand, which must have been either of a light color, or at an angle to receive too much light, for the otherwise charming picture is a little hurt by the long straight line of high light. It is a gem of a picture, showing how much can be done with ordinary, inexpensive accessories and everyday subjects. It shows more thought and care than any picture offered for competition in any style.

Jno. C. Browne,
Wm. Thomson, M.D.,
John Moran.

PRACTICAL NOTES ON PHOTOGRAPHIC SUBJECTS.

BY G. WHARTON SIMPSON, M.A., F.S.A.

A Suggestion for Dispensing with Acid Conditions in the Wet Process.—As the result of observation and experiment for some time past, I have a suggestion to offer, of a means whereby greater sensitiveness may be obtained in ordinary wet collodion plates, and at the same time one fertile source of trouble got rid of.

Other things being equal, it will be generally admitted that neutral, or even alkaline conditions, are favorable to sensitiveness. Without entering into disputed questions, as to the nature of the latent image, it may be safely affirmed that the aim in the operations in producing a negative, is to reduce the silver in the film from its salts to a metallic state. The action of light initiates that reduction, or, at least, determines the ratio and place of such reduction when completed by the action of a developer. Free acid has the power of destroying a latent image and of retarding its formation, and the further power of seriously retarding the operation of reduction in development; its presence, therefore, at any stage of the operations, is inimical to rapidity. In aiming at rapidity and safety, the photographer has to preserve a careful balance of forces: his object is to secure the greatest facility of reduction without fog, the greatest readiness for reduction which light has initiated without risk of reduction where light has not acted. If a bath and collodion, neutral or even alkaline, giving a film with the molecules of the sensitive salt in that tottering state of equilibrium, which the slight impact of light disturbs sufficiently to determine the formation of an image, can be employed in conjunction with a developer, which is sufficiently energetic to complete the action of light, without causing reduction in the parts upon which light has not acted, there can be no doubt that a method more sensitive than that commonly in use may be secured.

The great difficulty in securing these conditions, in the ordinary wet process, consists in the tendency to general reduction and fog which attends the conjunction of an alkaline or neutral silver solution and an energetic developer. Abundance of some restraining agent in the developer has been the general remedy for this defect, and it is a modification of that restraining agent permitting control over reduction without loss of sensitiveness, I have to suggest, as a means of obtaining greater rapidity. If I were to assume the chemical theory of the latent image, I should be disposed to allege, as a reason why the use of an acid bath rendered prolonged exposure necessary, that it is probable that the infinitesimal amount of silver reduced to form an image by the first action of light is at once eaten up by the nitric acid present, which is waiting, like a greedy monster, to seize upon any metallic base which may come near it. A prolonged exposure is necessary, therefore, to overcome this, and secure sufficient reduction to form an image which can be developed. Whatever theory of the latent image be accepted, the fact of long exposure being necessary in the presence of free acids is well known. If, therefore, a perfectly neutral silver solution be present, a developable image is, doubtless, formed with a much shorter exposure. But, when a neutral silver bath is employed, there is serious risk that the moment it comes into contact with a reducing agent general fog may be the result; and, to avoid this, a weak developer with abundance of an acid as a restraining agent must be used; and as the acid has a tendency to destroy the latent image, these conditions largely undo the advantages gained by the use of the neutral silver bath.

The problem to be solved has been, then, to secure a means of using a quick collodion, a neutral bath, and a strong developer without a restraining agent, or, at least, without a restraining agent which shall have any tendency to destroy the latent image. The restraining agents, hitherto chiefly used, have depended on chemical action. The substitutes I propose—and my suggestion is based, as I have observed, on much experiment and observation—depend on physical action. I do not propose to interfere with the affinities upon which reduction depends, but to retard their operation. I propose to make use of the fact, which the experience of late years has abundantly illustrated, that *chemical action is materially retarded, although in no degree eventually destroyed, by the use of a vicious vehicle or medium for the solution of the bodies which produce such chemical action.*

In proposing this as a new thing, I do not overlook the fact that gelatine and similar bodies have been in use in developers for some years. Ever since the introduction by Mr. Carey Lea, of an organic salt of iron, various changes have been rung on his proposal, but the gelatine has generally been converted into glycocine, and its action has been regarded as chemical rather than physical. In short, although various viscous substances have been employed in the developer, the *rationale* of their operations has not received attention, nor has the fact, until now, been noted that it is to the viscous nature of the medium checking the free movement of the molecules of the substances in solution, and so retarding, without destroying, chemical action, that the restraining action of many of the bodies is due. My attention was first called to the fact that chemical action was retarded, but not destroyed, when viscous bodies were present in the solutions of the substances under experiment, by observing the reactions in the preparation of collodio-chloride of silver. When an aqueous solution of a chloride is added to an aqueous solution of nitrate of silver, the precipitation of chloride of silver is instantaneous; but, when an alcoholic solution of a chloride is added to collodion in which nitrate of silver is in solution, the reaction between the salts is extremely slow; some seconds always elapse before there is any indication of the double decomposition; sometimes several minutes elapse before an appreciable formation of chloride of silver is apparent. By experiment, we have found the delay to be in the ratio of the thickness and viscous character of the collodion. With a thin, limpid sample, the reaction occurs in a few seconds; with a thick, glutinous collodion, several minutes must elapse. The same facts are observable in the preparation of gelatino-chloride of silver, in which, of course, only aqueous solutions are employed, but rendered viscous by the presence of gelatine.

This observation led to a review of many experiments, and to the trial of many more. Sugar, honey, gelatine, gum arabic, and glycerine have been tried with considerable success.

Several years ago Mr. Blanchard mentioned to me that he found that he could add nitrate of silver freely to an ordinary iron developer, without producing any reduction, provided he added also a sufficient quantity of glycerine; and I have, for years past, frequently dispensed with acid in the developer altogether, when using honey or sugar. With glycerine in the developer, Mr. Blanchard recently developed a plate without fog, which had been excited in a bath with a slightly alkaline reaction. The fact that development is checked by the presence of viscous bodies, may be easily proved. If a little of a neutral silver solution be placed in a test tube, and a little of a neutral solution of sulphate of iron added to it, the decomposition and turbidity will be almost instantaneous; but if sufficient gelatine, gum arabic, or glycerine be added to each solution, to make them of the consistency of collodion, the mixture will remain clear a long time after the iron has been added to the silver solution.

It will easily be seen, then, I think, that by using developing solutions rendered viscous by some neutral body, a retarding influence on reduction is produced, without the use of a body like an acid, which has a destructive influence on the latent image. By such a neutral, retarding body reduction is delayed without ultimately being prevented, so that time is given to effect the reduction which light has initiated, and so bring out the image before complete reduction of the neutral silver solution is effected, and facility is thus obtained for securing the rapidity involved in the use of neutral solutions without the risk of fog.

It was my intention, before publishing, to have worked out this subject systematically, with a view to ascertain the most suitable material and the most convenient proportions, but circumstances occurred to induce me to commit the idea at once into the hands of other experimentalists.

Substitutes for Yellow Glass.—The use of a solution of the bisulphate of quinine has more than once been suggested as an adiactinic medium in place of yellow glass, but it has never come into general use. The only specific experiments on record are those of Mr. Crookes, from which we learn that, whilst a considerable portion of the actinic rays were absorbed by the solution, sufficient of these rays were transmitted to render the quinine screen useless in delicate operations. At the recent meeting of the British Association, however, Prof. Marren, in recording some very delicate experiments on the action of light, stated that he found a screen of the quinine solution, five millimetres (three-sixteenths of an inch) in thickness, sufficient to cut off effectually the actinic rays, and commended this fact to the attention of photographers. Since then, a correspondent has informed me that he has used it successfully for some time, an elegant application consisting in a screen of the solution in the cap of his lens, permitting him to focus on the sensitive film, whilst the plate was *in situ.* Prof. Marren made his screen by cementing two plates of glass with gutta percha, five millimetres apart, and, after filling up the space with the solution, closing the aperture with gutta percha. The neutral sulphate of quinine is very sparingly soluble in water, excess of sulphuric acid being necessary in producing a concentrated solution.

Bi-coloring of Stereo Slides.—A method of coloring stereographs, which was patented many years ago, but has dropped out of notice, is worth a passing note, having been again brought under attention by Col. Sir Henry James, who communicated it to the *Athenæum* a week or two ago, as, to him, a new idea. The method in question is chiefly applicable to draperies, and consists in coloring a dress, say, in one-half of the slide one color, and in the other half of the slide another. The best effects are produced when the two halves are colored in complementary tints. A delicate green, say, on one-half and a pink on the other; or a delicate yellow one side, and a purple, or mauve, or lilac on the other. The tints blending when examined in the stereoscope, give a pretty effect like that of a shot silk, the colors so obtained possessing a transparent brilliancy not otherwise obtained.

Shellac and Gelatine as a Sizing Material for Photographic Prints.—It seems almost impossible at present to escape from printing processes and proposed improvements therein. I have yet another to mention. Mr. Davies, at a late meeting of the Edinburgh Society, brought forward a process with which he had been experimenting, by which singularly good results had been produced, and a singular immunity from dependence upon the nature or purity of the printing material obtained. The prints, with several examples of which Mr. Davies favored me, are exceedingly fine. There is in all cases a rare degree of force and depth, without harshness, in the general character of the picture. There are various tones, of which the most prevalent, an exceedingly rich velvety black, resembling the color of a fine mezzotint engraving, is the finest. The surface is quite matt, but without dulness or flatness. As I have said, any material seems to serve, and I have examples on the common blue paper used for seidlitz powders, on cartridge paper, on rough drawing-paper, on brown packing-paper, on the back of a posting bill, and other kinds of paper, and in all cases the print is free from any blemish or indication that the material is unsuitable. Mr. Davies informs me that since the meeting he has tried its application to prepared canvas with perfect success, some slight modifications being, however, necessary, which I hope to give your readers in a future number.

The mode of securing these results consists of the use of an emulsion formed by mixing a warm solution of gelatine with a lac varnish; or, in other words, it consisted of a sizing preparation, used in the gilding trade, formed of a mixture of ordinary French polish diluted with its own bulk of methylated spirit, and a weak solution of gelatine. To this mixture about 4 grains per ounce of chloride of sodium, or a suitable proportion of other chlorides, were added, and the surface intended for printing was treated with the mixture, which was applied with a flat brush, being subsequently sensitized by floating or brushing with an ordinary 40-grain silver solution, or an ammonio-nitrate solution.

The detailed instructions given by Mr. Davies are as follows:

"My method of preparing the surface—for I believe it will do for many other surfaces than paper—is the following for direct printing: Take from 4 to 6 grains of gelatine, soak it in an ounce of water for an hour, then melt it gently over a fire, hot plate, or water bath, using a clean earthen pipkin. When fully dissolved, add to it, while yet warm, and stirring it gently during the mixing, from 4 to 6 drachms of a solution of white lac in methylated spirit, if for white or pale surfaces; but orange lac will do if the surface be of a darker color. This is made in the proportion of 6 ounces of spirit to 1 ounce of lac, and digesting it till fully dissolved. The mixture of the gelatine and gum lac in spirits produces a creamy-looking emulsion, to which is added 4 grains of chloride of sodium, or a like equivalent of chlorides of ammonium or barium, and, when fully dissolved, filter through fine muslin into a clean pipkin, and it is ready for use"

Transferring Collodio-chloride Prints.—One of my correspondents has recently brought under my notice an ingenious method of transferring collodio-chloride prints. The advantages which attend any method of transferring a print from the surface on which it was produced to some other are manifest and manifold. Besides all the conveniences of being able, for ornamental purposes, to place a print on some surface which could not have been conveniently manipulated in the ordinary modes of printing, there are various other points of importance gained. The print itself has a much higher chance of permanency if the thin film, of collodion or other substance, holding the image, can be removed from the resting-place on which it was produced, so that the hypo-saturated paper, so difficult to wash perfectly, may be discarded, instead of forming a portion of the print in its finished state. Again, if it be desired that the image should be on wood, ivory, etc., there is always great risk in submitting such substances to the action of various solutions, and finally, of much washing; and if a satisfactory completed image can be transferred to such surfaces by any method, much is gained in every way, both as regards convenience, beauty, and permanency.

The method in question is very simple, and I find, on testing it, very efficient A piece of smooth, stout paper is coated with India-rubber varnish made by dissolving pure India-rubber in benzole in the ratio of about 10 grains to the ounce. I have used the India-rubber solution used by Mr. Swan in his carbon process. This varnished paper is coated with a good sample of collodio-chloride of silver, and then printed, toned, fixed, and washed in the usual manner. It is then brought into contact, face downwards, with a card or other surface which has been treated with a little gelatine, and care taken to remove air-bubbles, and left to dry; after which a little benzole applied to the varnished paper softens the India-rubber, and permits the paper to be removed, leaving the image firmly attached to its final resting-place. The production of cards with a film of collodio-chloride slightly bedded in the mounting-card to which it is transferred, produces a very pleasing effect. But it is manifest that other useful applications can be easily made. The transfer of the film to ivory is one desirable use of the process, inasmuch as any process in which the ivory comes into contact with either silver solutions or hyposulphite of soda, it is desirable, if possible, to avoid. I have not yet tried the transfer to ivory by this method, but I have tried the transfer to a tablet of white papier-machè with perfect success, and this is so analogous that I am satisfied that no difficulty would be experienced with ivory.

MISCELLANEOUS HINTS.

BY M. CAREY LEA.

Chloride of Gold.—Whilst it is always a mistake for the photographer to undertake to make his own nitrate of silver, the matter is quite different in the case of chloride of gold. Nitrate of silver can be always obtained of excellent quality and unadulterated: with the gold solution there is less certainty of this. Besides, the quantity of gold solution used is much smaller; so that, in a single operation, the photographer may prepare enough to last him for a very long time. Without, therefore, undertaking to say anything very new upon the subject, I shall endeavor to give clear directions, such as will enable any one who cares, to prepare this chemical for himself without danger of loss of so valuable material.

For a first experiment, it will be well to use a small quantity of material—a gold coin weighing a few pennyweights. It will be well, also, for the first time, or the first two or three times, to weigh the coin, and then, by weighing the product at the end, the operator will assure himself that he has incurred no loss of material.

The next step will be to dissolve the coin in aqua regia, prepared by mixing hydrochloric and nitric acid, in the proportion of one ounce of the latter to two of the former. As gold has a large equivalent number, the quantity of acid necessary to dissolve it will be but small. A moderate excess is proper; a large excess does no harm, except as wasting the acid.

In this first dissolving of the gold, its solid condition renders its solution slow, and a gentle heat may be applied to expedite it. No precautions are necessary, as in the second dissolving of the gold after its purification, when, instead of being in the solid form of coin, it is in fine powder.

The next step will be to precipitate with protosulphate of iron. The action of the protosulphate has here some analogy with the development of an exposed plate, in the wet process. In the latter, metallic silver is thrown down from the silver solution; in the former, metallic gold from the gold solution. There is an important difference, however, that the gold is thrown down pure, which is not the case with the silver salt. Therefore this mode of operating cannot be used for the purification of silver; recourse must then be had to the precipitation as chloride.

In saying that the gold is precipitated in a state of purity, it should be mentioned that, strictly speaking, there may be thrown down with it two other metals,—the revived gold may contain traces of silver and of platinum. It is evident that there can be very little silver present in the solution, by reason of the hydrochloric acid used in making the solution, and the amount of platinum present in gold coins is infinitesimal. There is no difficulty, if desired, in getting rid of both these substances. Silver is removed by simply evaporating to dryness, and dissolving with a little water, which dissolves the chloride of gold, but leaves behind any trace of chloride of silver. Platinum is got rid of by fusing with nitre. But as both these other metals are found in extremely small quantity when present at all, and are wholly without injurious effect, it would be a mere waste of time to undertake to remove them.

The operator will therefore take his precipitate as being pure. If he has already (in the case of a first trial) weighed his gold before solution, he will do well to weigh also his precipitate; first, however, washing it carefully by stirring it up thoroughly with water and allowing it to *completely* subside again. This is best done in a deep glass vessel,—a precipitating jar is the most convenient. To get it dry (which is only necessary if it is to be weighed), pour off the last washing water pretty closely, then shake up the powder with what remains of the water, and pour out into a clean porcelain capsule. In a few moments the gold will subside to the bottom; the water may then be poured back into the glass jar to wash off whatever adheres to the sides. By repeating this a few times, the whole of the gold will be transferred without loss to the capsule. After subsiding again, the water is poured off closely and the capsule set in a warm place to dry.

After drying, the operator can take the weight, and ascertain (after allowing for the mint alloy) whether or not he has the right quantity. If he has not, it will probably be ascribable to his not having allowed his precipitate of gold to thoroughly subside during the washing, before decanting. This is a point requiring attention. It is advisable always to pour the *gold solution into the iron solution*, and not reverse this order. Employ the solutions cold, and the stronger the better. The iron solution should be acidulated with a few drops of either sulphuric or chlorhydric acid: in either case, especially the former, the acid should be pure. The object of these latter directions is to get the gold in larger particles, so as to subside more quickly and more completely. If you reverse them all, using your solutions weak and hot, and pouring the iron into the gold, you will succeed just as well; but you must, in such case, leave the gold powder a long time to settle between each decantation.

Having now got the gold powder, it only remains to convert it into chloride. Mix a little weak warm aqua regia (say, diluted with its own bulk of water) in a capsule, and add by degrees the gold powder. Each portion will speedily dissolve: if it does not, apply a little heat. The action of the acid on the metal in a state of powder is far more rapid and powerful than upon the solid coin. Avoid using any large excess of acid, and evaporate gently to dryness. It is best to do this on a water bath,—at any rate, avoid any excess of heat. Dissolve the chloride in water, allowing eight grains of metallic gold to each ounce of water, and keep this solution by you. Each fluidrachm, then, contains one grain of metallic gold, and you will always know the exact strength of all the solution that you make.

A circumstantial description like that which I have given, makes the operation seem more troublesome than it really is. But it also tends to save from annoying and expensive mistakes those who may try it without much familiarity with chemical manipulations.

The Toning Bath.—As the preparation of the toning bath is the immediate object of the making of the chloride of gold, a brief word on it will scarce be inappropriate here.

A simple solution of chloride of gold, largely diluted with water, will tone a print, but eats it away too much. It becomes therefore needful to remove the acidity, and this may be done in various different ways, which, although they act in the same general manner, give rise to gold deposits of very various shades of color.

A very simple method of making a toning bath lies in shaking up the gold solution, diluted so as to contain about a grain of gold to the ounce, with precipitated chalk.

The quantity of the chalk should be not less than a grain or two to each grain of gold. More will do no harm; the excess simply falls to the bottom. This solution is then further diluted with six or eight times its bulk of water.

A more common method lies in neutralizing with bicarbonate of soda; two or three grains to each grain of gold are generally employed, and the solution diluted as above.

Acetate of soda is likewise capable of neutralizing a gold solution, and the acetic acid liberated is of no more injury than the carbonic acid in the two previous cases. Benzoate of soda, of ammonia, or of potash, act similarly. In the case of the acetates and benzoates, two or three grains to the grain of gold, precisely as in the former cases, will give a satisfactory result.

The acetates and benzoates make the best of all toning baths. Rich, warm shades of purple, black, and sepia are more easily got with them than with any other. I do not propose here to enlarge upon the superiority of this form of toning bath, having already done so on a previous occasion, but cannot leave the subject without strongly recommending those who have been in the habit of using alkaline carbonate, or chalk, to give the acetate or benzoate bath a fair trial. The result I think will, in most cases, be its permanent adoption.

1870.

We can hardly conceive that this year is so near at an end, and that we can almost feel the breath of 1870 upon us. It seems but a few days since we called upon our readers to aid us in securing a wider circulation for the *Philadelphia Photographer*, and here we are at it again. Of course, we hope to retain all of our *old* subscribers. We cannot spare *one* of them. We desire to benefit you and to share your goodwill. We know that many of you have worked strenuously for *our* Journal (*yours* and ours), as our much swollen and continually swelling subscription books testify. For this we are grateful, and *apply for an extension*, our argument in our own favor being, that if you *grant* it, greater effort than ever before shall be put forth to interest, profit, and please you. We have many fine pictures under way, among which are prints by the Woodbury and Albert processes; the *prize* prints, prints from negatives by Messrs Adam Salomon, Kent, Kurtz, and others, all of which promise fine.

In addition to this, we ask your *special attention* to our offer of premiums on the third page of the cover, for *new* subscribers. We hope they will be taken advantage of, and that the demand on us for premiums will be large. This we ask, not as a matter of friendship, but as a matter of *business*, our offer being *equivalent to one dollar for every new subscriber* for a year.

In addition to that we will give an extra premium, equal to the first, for the largest club of subscribers sent us previous to the issue of our January number.

Will *you* not try to get it?

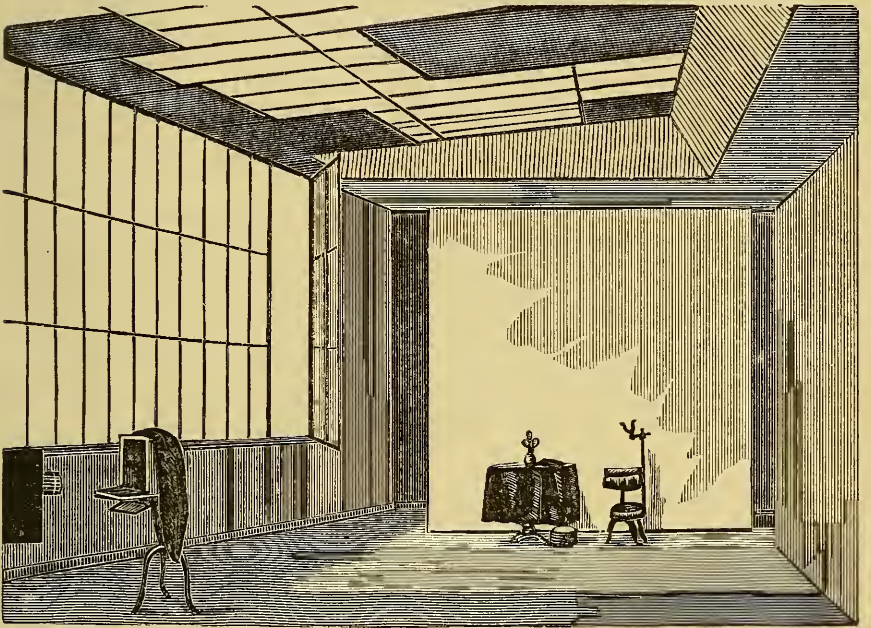
NEW AMERICAN STUDIOS.

The next new Studio which we shall describe, is one recently erected by Mr. A. Bogardus at No. 1153 Broadway, New York. Mr. Bogardus continues business at his old establishment at No. 363 Broadway, but, finding that another one at the new location would be encouraged, with commendable enterprise proceeded to supply the want.

A recent visit enables us to describe the new studio. The front, about twenty-five feet wide, is adorned by two magnificent show-windows on the ground-floor, full of elegant specimens. The reception-room is handsomely furnished with cases, counters, and portfolios, and the walls are hung with specimens of all styles of portraiture, plain and colored. Back of the reception-room, occupying nearly half of the floor, is an art gallery, which is devoted to the exhibition and sale of *American* paintings, *i. e.*, paintings by artists in America only. This gallery is finely lighted and arranged, and will become a great resort of all lovers of art.

From the reception-room the stairway ascends to the centre of the second floor. The northeast corner of this floor is devoted to the printing-room and all its requirements, which are after the usual style, nothing novel being introduced there. The southeast room is for the artists' use, several of whom are kept constantly at work to supply the demand for colored pictures.

The centre of the room is devoted to the passage-way from one stairs to the other. Back of this passage, to the right, is a cosy little sitting-room handsomely furnished; back of it a water-closet, and at the other side a large room for the ladies' toilet-room. All these rooms are well lighted, and every means employed to make them comfortable in all weather.



The third floor is devoted to the gentlemen's toilet-room, which is at the head of the stair, to the dark-room and to the skylight. The dark-room occupies the entire west end of the floor, and, though small, is supplied with every convenience. The drawing above is of the skylight. The side-light, which is 15 feet wide by 9 feet high, is of blue-frosted glass, and is on the north side of the building. The top light is 15 feet wide and 14 feet long, inclining to the north at the angle shown in the drawing. Screens are used inside, worked by spring-rollers, to modify the light as it may be found necessary. This construction of light has never been a favorite one with us, though in it good work can be made. Where it can be obtained, the plan described in our August issue is much to be preferred. In Mr. Bogardus's studio one has the space to move the subject about from place to place, and plenty of space to work in. It is furnished with the best of apparatus and instruments, which are presided over by Mr. E. M. Howell. We are glad to say, too, that it is favored with a fine patronage, and, although Mr. Bogardus has only occupied the building a few weeks, he has already found it necessary to take more space from the next-door building. Mr. Bogardus is well known to many of our readers, as the President of the *National Photographic Association*, and he is also one of its most *active* members. Photographers who desire to see his new rooms are always welcomed.

RECOVERY OF GOLD FROM USED SOLUTIONS.

BY WILLIAM BELL.

Usually, iron is added to used gold solutions, and the precipitate collected and dissolved, entailing time and cost, and, in most hands, loss. Instead of this, evaporate your used gold solution to a small quantity, add muriatic acid sufficient to dissolve the oxide of gold suspended and deposited in the solution; filter out the insoluble chloride of silver (which save), and evaporate the solution to dryness, not using too great heat. Product: chloride of gold and sodium, ready for use.

PHOTOGRAPHY FOR BEGINNERS.

No. VIII.

BY PROFESSOR JOHN TOWLER, M.D.

We will now proceed to the preparation of albumenized paper, which is more generally used than any other for ordinary photographs. Steinbach's plain paper, of two or three different thicknesses, such as fine, medium, and heavy, is about the best for albumenizing. There is a right and a wrong side to paper, which sometimes can be detected with the naked eye, one side exhibiting a fine reticulated surface, and the other not. The latter is the right side. To determine more easily and certainly, which is the right side, let a piece of the paper be immersed in water and thus thoroughly permeated with moisture; a magnifying-glass will now easily detect the network in question. The right side is to be albumenized.

PREPARATION OF THE ALBUMEN.

Separate the yolks and germs very carefully from a number of *fresh-laid* hen's eggs, and measure out 12 ounces of the albumen; add to this 1 drachm of ammonia, and shake the mixture up in a large glass-bottle until it is entirely froth. Cork the bottle and set it aside for a day or so, until the albumen has again, in a great measure, regained its liquid condition. Filter the liquid portion through a muslin filter, and repeat the operation of shaking the filtrate in a large bottle to froth; but this time you mix with it the proper amount of salting solution.

SALTING SOLUTION FOR TWELVE OUNCES OF ALBUMEN.

Chloride of Ammonium, .	1 drachm.
Chloride of Sodium, . .	½ "
Water, ...	1 ounce.

This solution is mixed with 12 ounces of albumen that has been once shaken and filtered. Shake the mixture again thoroughly to froth, cork the bottle, and set it aside for twenty-four hours to settle. Filter the solution again through a muslin filter into the rectangular flat dish in which the sheets are to be albumenized.

The object of albumenizing paper is to obtain a smooth, homogeneous surface, for the albumen fills the pores and cavities of the paper. Albumen, too, gives a very brilliant surface, and, consequently, this produces a brilliant print. Besides this, it aids in retaining the photographic picture upon the surface of the paper.

Whilst filtering the albumen into the dish it is well to let the lower end of the glass filter just touch the side of the dish; this expedient prevents the formation of bubbles, and thus leaves the liquid quite smooth as it increases in depth in the dish. The operation of filtering and of albumenizing must be performed in a room, the floor of which has previously just been washed and dried: the object of which precaution is to avoid all dust.

Place the paper to be albumenized in a damp room for a few days, and examine each sheet of paper before it is laid on the albumen; if you detect any black particles, or imperfections of any kind, reject the sheet, and select only good ones. The particles are generally metallic, as of iron, steel, or brass, and will mar the print in the subsequent operations.

There is a knack in laying the sheet on the albumen; this knack you have to learn by experience. As soon as the sheet lies flat on the liquid, raise one corner slowly to the middle of the sheet and remove all air-bubbles, then let the corner gently drop again on the fluid. Take up the opposite corner and do the same with this side. Let the sheet remain about two minutes on the albumen after all the bubbles have been removed. Now lift up one corner, that is, the nearest to the left hand, and the right-hand corner with the right hand, gently and slowly from the dish; in that way the excess of albumen will flow off more easily and evenly than by a quick removal of the sheet. Let the sheet drain into the dish for a minute or so, and then throw it over a large wooden roller or drum to dry. If you pin up the sheet by its two upper corners, the albumen will be much thicker on one, that is, the lower side, than on the upper; and, if you hang it up diagonally over a cord, a diagonal mark will be visible in the sheet; and this mark is sometimes very objectionable. The more quickly the sheets are dried, the more brilliant the albumen surface becomes. As soon as the albumenized sheets are dry, they are placed each between smooth sheets of pasteboard, and subjected to pressure, so as to make the surface perfectly smooth and uniform. There is no use in subjecting the albumenized sheets to heat with the idea of coagulating the albumen. The coagulation is easily effected by the sensitizing solution hereafter recommended.

By diluting the albumen with water, the albumenized surface loses much of its gloss, as well as of its absolute utility, which, as before said, consists in filling up the inequalities of the paper. Still, much of the paper in the market is prepared with dilute albumen.

There is another kind of paper which, for special purposes, has its value and adaptability: this is arrowroot paper. Such paper is suitable for solar-camera enlargements, and for prints that are to be colored or worked up with India-ink.

ARROWROOT PAPER.

Make the following mixtures:

SALTING SOLUTION.

Chloride of Ammonium, .	2 drachms.
" Sodium, . .	1½ "
Citric Acid, . . .	4 grains.
Water, ...	18 ounces.

ARROWROOT SOLUTION.

Arrowroot, . . .	5 drachms.
Water, ...	2 ounces.

Rub the arrowroot, in a mortar, into a cream with the water; then boil the salting solution, and, when boiling, add the arrowroot solution gradually, stirring all the while. The mixture is then set aside to cool. A scum forms on the surface as the mixture cools; this must be removed, as soon as you are ready to use the substance.

Each sheet of paper is fixed upon a board slightly less in size than itself, in order that the edges can be turned down and fixed on the edges of the wood by tacks or pins, and the arrowroot paste is rubbed over the surface of the sheet by means of a piece of soft sponge or a broad camel's-hair pencil. By dexterity all streaks are easily removed, and the surface is left quite smooth. The sheet is then hung up and dried in the way recommended for albumen paper, or it may be suspended by two corners from a cord stretched across the drying-room by means of clothes'-pins.

SILVER BATH FOR PAPER PRINTS.

Notwithstanding all that has been said about a weak silver solution, I must confess my preference for a good, old-fashioned strong solution.

PLAIN SILVER SOLUTION.

Nitrate of Silver, . .	4 ounces.
Rain-water, . . .	20 "

If the solution is neutral, good; if not, add carbonate of soda until it ceases to change blue litmus paper red. This solution, of itself, will coagulate the albuminous surface of the paper, and thus render it in a great degree insoluble in the subsequent operations.

Another silver solution is much liked, especially for plain salted paper or for arrowroot paper.

Nitrate of Silver, . .	3 ounces.
Nitrate of Ammonia, . .	3 "
Rain-water, . . .	30 "
Oxide of Silver (as much as can be dissolved in the solution)	

Filter the solution after it has been thoroughly mixed, by stirring with a glass rod, and has stood for a number of hours.

The sheets are sensitized on either of these solutions by being allowed to float thereon for about a minute; you must naturally take care to free the surface from bubbles of air whilst sensitizing, by first raising one corner to the middle of the sheet, and then brushing away or breaking up the bubbles with a piece of clean blotting-paper, and then proceeding with the other half in the same way. After a minute, the sheet is raised gently from the solution, and hung up to dry, taking care to place a cup or glass below the lowest corner, to receive the silver solution as it drops down. Let the sheets dry spontaneously, and place them, when dry, between the folds of clean paper, in a large book and under pressure. If you dry the paper by artificial heat, it is apt to dry irregularly and too much, and will almost certainly expand into undulations or blisters, if used immediately under the negative.

Furthermore, many operators submit the sensitized albumen sheets, when dry, to the fumes of ammonia or of carbonate of ammonia. I do not think, however, there is any really essential advantage in what is called fuming. The operation is performed as follows: Place some ammonia in a saucer, and put this in a cupboard that can be closed pretty tight. In the winter season the ammonia is placed in an evaporating-dish that can be heated by a small lamp. The dry, silvered sheets are hung round the cupboard, so as to be impregnated with the fumes of ammonia. After the sheets have thus been fumed for a quarter of an hour or so, they are taken out and hung up in the dark-room to be ventilated, that is, to part with all their free ammonia. They are then ready for the printing operation.

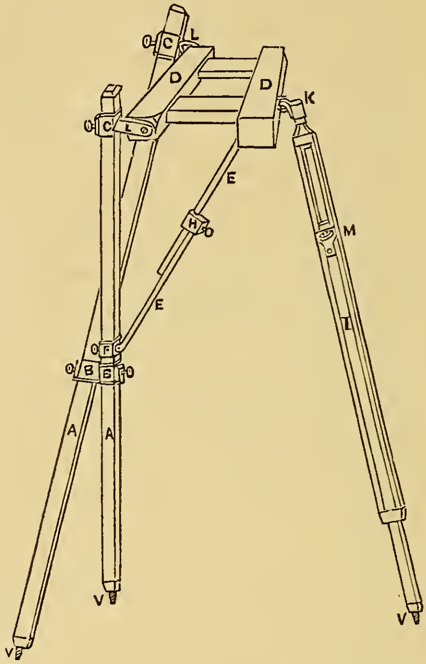
(To be continued.)

TURNBULL'S ADJUSTABLE TRIPOD.

Photographers who are accustomed to working out of doors, know the want of a tripod which they can readily and securely adjust to the inequalities of the ground.

The drawing below is to represent an adjustable tripod, the invention of one of our subscribers, Mr. A. E. Turnbull, Upper Sandusky, Ohio, and by him recently patented.

The two legs, A, A, pass through metal slides, B, B, which slides are pivoted together. C, C, are similar slides, pivoted in a like manner to the pieces L, L, which pieces are screwed to the top frame, D, D, thus forming universal joints. It is plainly seen then, that the top, D, D, may be raised and lowered by passing the legs through the slides named, and may be secured in proper place by the brace, E, E, which is fastened to D, D, by a universal joint, and to the rod, A, by the slide F, and another universal joint. It is also provided with a thumb-screw, H, in order that it may be more readily adjusted and fastened in place. The back end of the frame is supported by the extension leg, I, which is of three pieces, the centre one sliding between the other two, and fastened by a clamp at M. This leg is fastened to the top frame by another universal joint at K. The legs are furnished with strong screws at the ends, to which pieces of board may be screwed and stones laid upon them to prevent the tripod being blown or knocked over. It will be seen now, that any conceivable adjustment of the parts may be secured, and that the tripod may be used at its extreme height, or lowered to within one foot of the ground, and the top frame will suit any camera-box.



It strikes us as being an admirable contrivance, and, no doubt, will be amply patronized by out-door photographers.

PHOTOGRAPHIC SOCIETY OF PHILADELPHIA.

The regular monthly meeting was held Wednesday, October 6th, 1869—the Vice-President, Dr. Alexander Wilcocks, in the chair.

The minutes of the last meeting were read and approved.

The resignation of Mr. James N. Stone was read and accepted.

Mr. Constant Guillou exhibited a "photographic dodge" in the shape of a yellow shade for a candle, when preparing plates in the dark-room. It consists of a pint-bottle, of yellow glass, such as is sometimes used for gin, etc., cut off at the top and bottom, and forming a cylindrical shade or chimney. By resting this upon a brass ring, usually attached to a coal-oil lamp, an effectual, cheap, and convenient shade can be obtained, not liable to fog plates, and giving sufficient light to work by.

Mr. Guillou also gave his experience in washing paper prints during the long drought of July, August, and September. The supply of water in his laboratory in the country, having been exhausted, the usual mode of washing in running water was necessarily abandoned. He had recourse to patting, or pressing the prints on both sides with an *India-rubber sponge*. Ordinary sponge has been used heretofore, but the India-rubber sponge has probably not been so applied. It is more elastic, the pores or cells are much finer, and the power of suction (and hence of cleansing from hypo), infinitely greater. Prints so washed for a few minutes, stood unaltered by the severe hydrogen test proposed by Mr. Lea in his valuable manual (pages 225, 226).

Mr. Guillou exhibited before the Society, through the kindness of Mr. Thomas Sparks, President of the Pennsylvania Salt Manufacturing Company, a number of photographs of scenery in and about the celebrated Kryolite mine belonging to that company, and situated at Ivigtüt, Greenland. The views were very good and decidedly interesting in themselves, and also from the fact that they are the handiwork of an amateur, who had acquired the art in Greenland from books only, and without ever having seen a negative taken or positive printed by any other person. The size of plates were 4-4, and stereoscopic.

Mr. George Coale, of Baltimore, favored the Society with two prints taken by Mr. MacPherson, the well-known photographer of Rome, with a panoramic camera, which turns upon an axis, so that a wide extent of country may be taken from one standpoint.

Mr. Draper, of the firm of Draper & Husted, Philadelphia, presented to the Society a charming cabinet picture of a lady. The subject was admirably lighted and posed, and the chemical work first-class. The donation also included a variety of card pictures; one of the number a young lady dressed in white gracefully arranged, and having upon her head a delicate wreath of white flowers. This picture deserves especial credit for its great softness and freedom from solarization; and proves that by careful attention to light and chemicals, all of the excessive brightness, or chalky appearance too often seen in such a picture, can be avoided.

Messrs. Draper & Husted may justly be proud of their success in portraiture.

Mr. Browne exhibited a number of prints of the observatory at Ottumwa, Iowa, used by one of the parties sent out by the United States Government to photograph the Eclipse, August 7th, 1869.

On motion, adjourned.

John C. Browne,
Recording Secretary.

OUR PICTURE.

Through the kindness of Mr. Edward J. Muybridge, San Francisco, California, who has loaned us the negatives, we are enabled to present our readers with a view in the great Yosemite Valley, California. The negatives are by "Helios," Cosmopolitan Art Gallery, San Francisco. We have before us a series of, perhaps, one hundred and twenty-five views of this grand scenery, similar to the one we present herewith. They were taken by the indefatigable and untiring "Helios," before the great railroad belt that binds the Atlantic with the Pacific was completed. They were also made by one with a true artist's eye and feeling, and are, therefore, precious, and as fine as precious. To photograph in such a place is not ordinary work. It differs somewhat from spending a few hours with the camera in Fairmount or Central Park. All the traps, and appliances, and chemicals, and stores, and provender, have to be got together, and then pack-mules secured to carry the load, and drivers to have charge of them. Thus accoutred, the photographer starts out, say, from San Francisco, through hill and vale, across deep fords, over rugged rocks, down steep inclines, and up gorgeous heights, for a journey of one hundred and fifty miles. Several days are thus occupied, and several nights of rest are needed along the road—the heavens for a covering, and the fresh exhilarating air to drive away the chill and dampness of night. He sees much every rod of the way to tempt him to unpack his traps and bag the fascinating game; but no, he must not stop. The great Valley is more grand and tempting, and he must go on, for he has before him the work of a month —aye a year would not do it all.

Arrived at the Valley at last; oh! how overwhelming the sight! First, he totters with fright at the task before him. The sublimity, the awful loneliness and desolation, the marvellousness, the excruciating feeling of having one's expectations and ideas filled, and heaped up, and pressed down in generous measure, all confront him. But he goes to work valiantly, and the charming series of views before us are the result. Our readers may see and enjoy them all, but we are only able to give them one.

And what does the whole series tell us of the great Valley? They seem to bring us almost there. Our mind wonders, while our eyes wander from one to the other.

The whole Valley is about eight miles long and half a mile wide. At each side are great walls of granite from half a mile to a mile in height, often quite perpendicular and varying in color. If the wall on one side was called upon to serve the other, and bow obeisance, there would not be room for it to get down upon its knees. Only think of it.

In the Valley we see grassy meadows full of flowers, doubtless of gorgeous colors, and the everywhere present and always beauteous ferns, groves of stately pines and wide-spreading oaks, thickets of willows and birch with its curling bark, and can you not imagine you almost smell their combined fragrance and hear their moaning and rustling? Through and among them all winds the Merced, clear as crystal, catching the images of great domes and peaks, making the photographer almost wild at the prospect of catching them with the camera, while he half fears they may be gone when he wants them. But he need have no fear. They are always there for him, easily captured, as our pictures testify.

Now look at our picture, and see how grandly, straight, and solid and sharp on each side rise the great granite rocks, of all shapes and heights. In one place this rock rises up into space for full three-quarters of a mile. Imagine yourself squinting up such a line or your tripod and pet camera leaping down it. Then there are domes, and cathedrals, and pyramids, and ruins, all capped and crowned with foliage of some sort. And again, in the distance, roaring like hordes of wild beasts, we see the wild water falling from heights fifteen times as great as that of Niagara. Oh! what a privilege to be in such a place with the camera. There is everlasting food for it there. "Helios" has outdone all competitors. His views are grand, and, as a photographer, he might vie with the great Wilson, of Scotland. The negatives from which we have printed were not made for our purpose, being over two years old or more. We *tried* to print the whole number from one negative, *i. e.*, the "View on the Merced, looking up the Valley," and which we consider a grand picture. The negative, however, became quite intense from much contact with sensitized paper, and somewhat scratched, so we had to call into service two others—one of the Big Trees in the Mariposa Valley, and the other of a view *up* the Merced, showing a great fall through the Valley of Pines. All are beautiful, but, with the exception of, say, five hundred, they are of the view first mentioned. "Helios" hopes to go to the Valley again some time soon, when he promises to secure us some more splendid subjects. We are delighted with the prospect.

The prints were made by Messrs. Suddards & Fennemore, 820 Arch Street, Philadelphia, to whom much credit is due for their care in printing from a negative that had been used considerably before it came to their hands. They used the Trapp & Münch albumen paper, which the agent, Mr. Willy Wallach, has pushed to great popularity in this country, and the prints abundantly testify that the paper deserves it. It seems all one could desire.

Messrs. Wilson, Hood & Co., Philadelphia, are "Helios's" agents for his stereoscopic views, which not only embrace those of the great Valley and Trees, but also San Francisco, Vancouver's Island, Alaska, and views generally along the Pacific coast adjacent.

GERMAN CORRESPONDENCE.

The American Eclipse—Prominences Visible in Daylight—The Albert and other New Printing Processes—Monckhoven's New Artificial Light—Photographing with Reflected Sunlight.

THE report of the American expedition for observing the recent solar eclipse, is being discussed in scientific and photographic circles with the liveliest interest.

You have carried out a great scientific undertaking on the grandest scale, and the results are correspondingly great. The combined great powers of England, France, North Germany, and Austria succeeded in arranging two telescopes for the observation of the eclipse of 1868. One instrument was furnished by England, the other by North Germany. The other countries ignored photography as a means of observation entirely. Your expeditions, on the contrary, were furnished with about twenty of the finest instruments arranged for photographic observation, and hundreds of photographers and astronomers were engaged on them simultaneously. It really was a photographic battle crowned by a complete victory.

This imposing demonstration in the realm of science, surprises and gratifies us the more, as, generally, your countrymen are accused of caring only for material matters. Your successes will, undoubtedly, give to celestial photography a new impulse, and refute many of the objections that are now advanced against it.

But, of still more importance, are the scientific results. I have read Prof. Morton's reports, on the photographs of the corona, with the greatest interest, particularly the startling hypothesis, which, at the same time, is supported by the greatest probability, that the corona is a sort of northern light surrounding the sun.

These explanations of the nature of the corona are, undoubtedly, the most important results of your eclipse expedition, in the same way as the 1868 expedition distinguished itself by explaining the protuberances by spectrum analysis.

Our knowledge of the constitution of the solar body has been wonderfully increased during the last few years. I have told you, in a former letter, that Prof. Zoellner, in Leipzig, is able at any time, to see the prominences when the sun is visible; it is a step further than the discoveries of Jansen and Lockyer, and the whole matter is so simple and original that I can explain it in a few words.

If we attach the spectroscope to the astronomical telescope, and observe the edge of the sun, we will obtain two spectra, one bright one of the edge of the sun, and a feebler one of the blue sky, both containing dark lines; if, however, the edge of the sun contains protuberances, then bright lines will suddenly flash out in the spectroscope. Zoellner has widened the slit of the spectroscope so as to take in the whole protuberance, and increased the number of the prisms in the spectroscope, which has the effect of weakening, to a large degree, the spectrum of the sky, by means of the large dispersion (the light of the sky consisting of rays of different refraction), while, on the other hand, the light of the protuberances, consisting of homogeneous rays, will be weakened to a much less degree, and, hence, it happens that, with such an arrangement, we can make out the form of the protuberances in broad daylight.

Zoellner's observations, however, are really remarkable; he observed, for instance, on the morning of July 1st, a protuberance which, before his eyes, during twenty-three minutes, took a variety of shapes, varying from that of an inflated balloon to that of an inverted U of irregular shape.

He saw further conical figures, and above them clouds exactly like a representation of Etna; in short, "there are more wonders between heaven and earth than what we dream of in our philosophies;" however, I will speak of things on earth.

Albert's process is still the subject of much comment. It seems that the matter has entered into a new phase, and that the world is to be flooded with new printing processes.

Obernetter, in Munich, publishes prints which seem to be produced by a process analogous to Albert's.

Bruckman, of Munich, works in his printing establishment a new half-tone printing process, and, to make the list complete, an establishment has been opened in Berlin, which will teach, to any one, for the sum of 200 thalers, a printing process similar to Albert's.

The establishment belongs to Messrs. Ohen & Grossman. As inventor and practical printer, they employ a Mr. Gehrmser. The *modus operandi* itself is not known; the results, however, are so nearly like the Albertype, that the processes must be nearly identical.

During the last session of our society, these gentlemen showed some samples of their work, which were received by the members with much attention; they showed more sharpness and depth than most similar prints. I hope soon to be able to send you specimens.

After a long silence, Mr. Monckhoven, in Vienna, appears before the public with a new photographic light, which consists of oxide of titanium, heated by a hydro-oxygen flame. He employs this light to make enlargements, and, according to the statement of my friend Schierer, Monckhoven has made with this light an enlargement in from sixty to eighty seconds, which, on a development of ten minutes, gave a good picture. The time was nine o'clock in the evening. The picture was a paper negative enlarged from a glass positive, which, when made transparent, is used for making positive copies. Monckhoven will soon publish a description of his new apparatus.

Experience will soon give the practical test to this invention. I, for my part, have lost much confidence in all artificial lights. My experience in the Egyptian tombs and temples are the cause of it. In many of them I have burned large quantities of magnesium wire without arriving at a satisfactory result, and succeeded, finally, much better with reflected sunlight. An opening was made in a funeral vault; the rays of sunlight were caught by a mirror and thrown on the object. The effect was better than fifty feet of magnesium wire. By moving the mirror, the light glides over the object, and, in this way, I have copied wall-paintings, dark corners, ceilings, etc.

My example has been imitated. The photographer Hammerschmidt has recently taken the interior of the Church of the Holy Sepulchre, at Jerusalem; also the Anointment Stone of Christ, in the same church, by means of reflected light. He has succeeded admirably where all former attempts have proved failures.

In all these proceedings, directly reflected light proved efficient. Lately I tried to make a picture with double-reflected light; the object was a gas machine which stood in a dark corner of the Royal Academy; it could not be reached by direct, reflected light. I had to use two mirrors; the light was kept longer on the dark parts than on the light ones. The lens was a Steinheil Aplanatic, No. 3, with the third stop; time, July 24th, between 3 and 4 P.M. I found that an exposure of from eight to nine minutes was necessary to obtain a fully exposed negative. This goes to show how large an amount of light is lost by reflection, as the same lens, with direct light, would have required an exposure of twenty-five seconds. At the same time, I cannot help mentioning the extraordinary difference in the actinism of sunlight, during different seasons of the year. For instance, under the 50th parallel of northern latitude, the intensity of light on the 21st of December, at noon, is only equal to the intensity at 6½ P.M. on the 21st of July. In this respect the photographers of the southern hemisphere have the advantage over us, as, with them, Christmas happens in midsummer.

Yours, truly,
H. VOGEL, PH.D.

WHAT IT PROMISES.

THERE is no more striking evidence of real progress, whether seen in a nation, or a corporation, or a community, than the increasing *diffusion* among the people of all that tends to elevate their character, advance their improvement, or to increase their happiness.

Neither is there a more striking evidence of progress in *our* art and profession, than the fact, that its votaries and workers are becoming more and more willing to communicate to each other what they know.

In days gone by, exclusiveness, restriction, and monopoly prevailed. No trifling idea, or wrinkle, or dodge, would be given, one by another, without an equivalent in money first being given, with a pledge of secrecy added thereto. Photography, it was thought, was discovered only for the privileged few, while the many were only to be used as stepping-stones, whereby the few could attain glory and prominence. The result was that photography progressed slowly, and the major portion of the work produced was inferior—even vile.

Silently and surely, however, these days are crumbling away—how glad we are to record it—and all who really love their profession, and desire to see *it* attain the glory and prominence it should, and ultimately will have, are willing to consider others, and are willing to communicate what they know to them. What is quite as good, too, many have cast their stilts aside, and are willing to learn from others. The day of photographic jubilee is coming, when there will be no secrets held; and then how differently will appear these pages, and how swollen in numbers!

It is a doctrine peculiar to the American people, that every human being shall possess the means of happiness, health, progress, as far as they are discovered, and as fast as he is capable of using them. So should it be with us as a profession. Nothing will tend more to our elevation than intercommunication. We should not strain every nerve for subsistence only, but should press on to the perfection of our work; or, in other words, the perfection of photographic results, and join in every enterprise leading to promotion and success.

The days when literature and science were sealed to the masses; when books were chained to the street-corners, and knowledge imparted to the few only, are all gone by. The diffusion of knowledge is what has made the world what it is; and so will diffusion of knowledge make photography what it *is to be.*

As the beautiful results we secure, every day, are only obtainable by the admixture of the chemicals, one with the other, we use, so the noble results of what we advocate are only to be secured by the efforts of each individual. There is no photographer so humble, but what, in his practice, he has some little dodge or idea that will be useful to others, and generally new to them. Diffuse it. Our pages are always open to aid you. The good that a single man can do in this way, is not to be computed. What changes the introduction of collodion, of albumen paper, of the iron developer, of fuming, of gold toning, and dozens of other things—what *wonderful* changes have they made in our results! Had the noble men who made them freely the property of the public, only suffered them to be whispered here and there, under oath of secrecy, where, think you, would photography be to-day?

All good grows by diffusion. As light thrown only on one part of the subject produces harshness and bad results, but when properly diffused over the whole of it secures contrast and beautiful harmony of light and shade, so whatever we know will do no good if locked up in our own possession, but if diffused how we shall grow!

Let us then diffuse. Let us *now* begin to work, with the intention of meeting, at the Annual Exhibition of the National Photographic Association in Cleveland, next June, *en masse*, and there be prepared to teach or be taught. Let not the meeting be a mere congregation to look at the pictures, but *more* than that. Then the photographic day of jubilee will be near at hand, and that is what the Association *promises*. Identify yourself with it *now* by becoming an active member.

GRADATED BACKGROUNDS.

All careful observers, and all good photographers, know what a flat, ugly effect is given to a face when the light is evenly diffused all over it. There is no contrast, no gradation of half tones, and, as we have said, the effect is flat and spiritless.

It is just so with a background of one unbroken tint; and our eminent artists have resorted to several means by which they can easily secure a gradation of tint upon the background. The first one we saw at it was Mr. J. W. Black, of Boston, whose method is, as near as we can remember, the following: To get a little shadow on the *top* of the background, a stationary screen is suspended horizontally from the top of the background, partly over the head of the sitter, and raised and lowered by means of cords and pulleys. Another shadow is thrown in *behind* the sitter by moving a very dark triangular screen, about one-half the size of the background (which, by the way, must be white, or very light), up and down during exposure between the sitter and the backgrounds.

The figure is softened and a light shadow thrown over it from the face downwards, with a small square pasteboard screen, covered with black velvet, with a semicircle cut out of one side. This is held in the hand and moved during exposure, covering the figure from one-third to one-half of the exposure, the time varying with the light, of course. In this way very pretty effects are secured.

Another method was suggested in the *Photo. News*, some time ago, by Mr. R. Gillo, viz.: "Provide a background about four feet square, on a frame, with a cross-piece at the back, in the centre of which is a hole to allow the horizontal rod of the head-rest to pass. It will be seen that when the rest is placed against the head of the sitter, the face appears in the centre of the square. There will be found no difficulty in painting this small background with a gradation from dark on one edge to light on the other. Lampblack and whiting, with a little size, answers for the color. When you have arranged the sitter, you can turn this around any way you please,—light at the top shading into dark below, or *vice versâ;* or a diagonal gradation, to suit circumstances and your own feeling. The different effects thus produced are astonishing. Sometimes the effect may be improved by shielding a part of the light from the background with a blind or curtain. From the fact of this background being so close to the head of the sitter, you often get a boldly cast shadow from the head or shoulders, which is very effective."

The standing of the background diagonally is also a plan by which very good effects may be had, as the part farthest away from the lens will be in deepest shadow, and *vice versâ*. We would suggest then that the background be swung by its centres in a framework, with a pin at each side for it to swing upon, and also at the top and bottom for the same purpose. The pins could be used to keep the background in place, when not used as above. This plan would also enable one to have a background on each side of the frame, and it could be quickly changed at pleasure. Of course, the backgrounds should be on the *sub*-frame, moving inside the larger, which should be mounted as usual on castors.

THE SCIOPTICON.

In our June issue we described, with a drawing, Mr. L. J. Marcy's photographic projector or portable magic lantern. A few days ago Mr. Marcy waited upon us with one entirely remodelled, and so improved that the light obtained is greatly multiplied; the condenser and the oil-holder are not heated, and all danger or offence from the burning of coal oil is entirely eradicated. It seems now to be quite perfect, and works beautifully, as we have practically demonstrated.

This little lantern Mr. Marcy now calls

the "*Sciopticon*," having coined a name to suit it.

A brief description of it, as improved, may not be out of place: It consists of a double-wicked coal-oil lamp, of peculiar construction, gives a remarkably clear and intense light, easily managed and perfectly safe. That slides under a metallic and glazed flame-chamber, which is supported within a cylindrical shell 4½ inches in diameter and 8½ inches long. The front of the cylinder contains the condenser; the rear is closed by the reflector; the middle is open above and below, and rests on a wooden frame. The flame-chamber and chimney being opaque, it is unnecessary to retain the heat in a lantern case. The deflecting cap, or bottom of the flame-chamber, is not supported by contact with the oil-cup, and the conduction of heat down the tubes is further broken by constructing them of several pieces.

The open space between the lenses allows of an improved arrangement, for the admission of picture-slides of the various forms and sizes, and for the easy use of a slender pointer to explain the projected pictures.

The whole is snug, compact, and portable. It is peculiarly convenient in producing the advancing and receding phantasmagoria, and such effects as require complicated manipulations. Even a double instrument for dissolving views is within easy reach from behind, allowing the operator to face the scenes produced.

It will not, of course, do for buildings as large as a church, but, for a room, say fifty feet deep, it will answer admirably and delight all the people you can put in such a room.

The thrifty photographer will find it an advantage to have one of them for utilizing some of his winter evenings to his profit. He can, himself, make the transparencies by the instructions, often given in these pages, of the beauties about his location, portraits of prominent citizens, etc. Moreover, the day is coming when the magic lantern will open up a new and large field for photography, in the demand for slides, which all photographers can make. The better the quality, and the more attractive they are, the more they will be in demand, and photographers can themselves aid in thus popularizing the lantern, while it helps them.

One of our English contemporaries has always devoted much space to instructions concerning the magic lantern, and we hope to get our readers interested in it also.

Hitherto, the lantern has been comparatively lightly esteemed as an educational appliance. The chemical lights in use are too troublesome for ordinary occasions, and the common lights are too dull to give satisfactory results.

All who have become acquainted with this new instrument, see in it the accomplishment of what has long been greatly desired by those who appreciate the value of beautiful, visible illustrations, as a means of imparting instruction and of affording rational amusement.

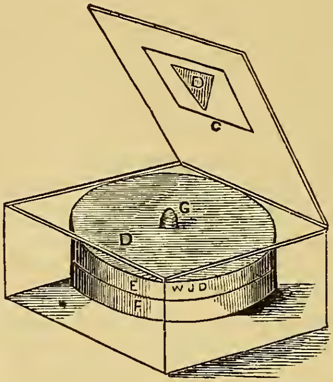
A NEW ACTINOMETER.

BY DAVID DUNCAN.

THIS description of an invention of my own, which is of service to me, may be of further service by occupying a niche in your Journal. At the outset, let me state that any remarks I may make upon the demerits of actinometers already introduced to the photographic world, I trust will be received with common sense and courtesy. I have no desire to depreciate the merits of others for the purpose of extolling my own. Giving mine freely to devotees of the art, let it be weighed in the balances, and judged fairly by those who have occasion to use such an instrument.

A simple and perfect actinometer, registering definitely and accurately, is much needed, and the necessity will increase. Those at present in use register by *tints* and not designs, which I deem wrong in principle, as tints and the various shades thereof are influenced by dryness and moisture, the luminous, calorific, and chemical rays, just in proportion as they predominate. The actinometers invented by Dr. Vogel and Mr. Swan have either numbers or letters; in both, when printing, the letter is surrounded by a tint, or, rather, is formed by a tint, the letter being opaque. In use, however, the eye wanders from the letter to the surrounding tints, and thus gets confused. If the design of these instruments is to register by the numbers alone, I mean as soon as each number is formed, they undoubtedly fail, for, as soon as No. 1 is perfectly formed, there is a trace of Nos. 2 and 3 upon the sensitive paper. Let me say, further, that Mr. Swan has invented one or two ingenious contrivances for registering by tints alone, and Mr. J. R. Johnson has a simple form of actinometer, by which he employs collodio chlorides. None of them can register accurately, for reasons stated. Mr. Bing's actinometer I have not seen, and cannot, therefore, speak with certainty, but should judge, from reading the description, that it was not simple. The one I have had made for my own use, registers by printing a letter or design ALONE, without reference to tints. I effect this in a very simple manner, by coating a piece of talc or mica with black varnish, and, when dry, scratching out the letter D, thus making a negative. I then cover half the letter with a piece of tracing-paper, or any other semi-transparent material, and also put another layer over one-third. It will be seen that, in use, one-half of the letter prints first, next two-thirds, and lastly the whole. The idea is to time the printing by the complete formation of the letter; for instance, if a carbon print required 60 seconds in direct sunlight, and the letter would be formed or printed in 30 seconds, it would be necessary to print it twice; that I accomplish by mounting the talc negative, which, by the by, is small, in the following form of box.

The box is 3 inches square and about 1½ inches high; a triangular opening is made in the lid, before which is attached the talc negative, D. E, and F are round pieces of wood or tables; the lower table, F, works on a screw, and can be raised or lowered at will. The table E, merely slips over screw G, so that it can be made to revolve by the hand when printing. Pieces of paper made sensitive, either with salts of silver or bichromate of potash, are attached to the upper table, E, by touching them in one or two places with gum, or any other adhesive substance. The sensitive paper can likewise be stored between the tables, E and F.



The letter D can be printed some eight or ten times on one piece of paper, which is then torn off to give place to the piece beneath.

I hope I have made the description intelligible; it is somewhat difficult to give a description of the instrument, so that its simplicity shall be apparent to all. Possibly, the above is foreign to those who have never had occasion to use an actinometer; but, when they should have occasion, they, no doubt, can refer to this paper with profit. Thê best way is to try all.

PERMANENT PHOTOGRAPHS.

IN the (Paris) *La Patrie* of September 14, we find the following from Mr. Samuel Henry Berthold, the Art correspondent of *La Patrie:*

In a volume having for title "The Tomb of Folly, by De La Martinière, the King's Physician and Operator," and published at Paris about 1650,—it bears no date,—the author inveighs with violence against the reality and possibility of the philosopher's stone. In return, he declares "that it is only by making captive a ray of the sun, the father of all nature's works, that we can obtain the transmutation of metals. So long as you do not make it *your vassal at discretion,*" says he, "*never expect to make gold.*"

It was reserved for the nineteenth century to bring to a successful termination this conquest of a ray of light.

In the ordinary photographic picture we fear the long-continued action of the light which has created it, and which destroys its own child, calling to its aid dampness and time.

Happily, enamel photography fears neither light, dampness, the action of the air, nor time itself. The operations by which a durability without limit is given to the fugitive images drawn by the sun, are but little known. Follow me to Mr. Mathieu Deroche's, where chance led me the other day, and see how he proceeds.

He commences by taking a negative image on glass by the ordinary methods, and by means of this negative he obtains a positive image, also on glass, with which he produces a third one by perchloride of iron. Plunge this into water, and little by little the slight coating of collodion on the glass will become detached and float on the surface of the water; then, by a dexterous and delicate action of the hand, slip under the image an enamel plate, upon which the pellicle will fix itself; withdraw this plate and allow it to partly dry; then, by means of a sieve, lay on a coating of finely powdered metallic oxide; and, to the great surprise of the spectator, this powder fixes itself strongly on the black and dark parts, whilst it tints but slightly the gray parts, and does not touch the white and reserved parts.

This is a hygrometric phenomenon easier to state than to explain.

After a few minutes of repose, the plate is held inside the mouth of a muffle, heated with coke to twelve hundred or fourteen hundred degrees. A light vapor soon appears over the piece of metal; it is the collodion that burns and disappears. Then a sort of small shovel, which supports the plate, introduces it into the deepest part of the muffle, and shortly after withdraws it, heated to a white heat, to place it on a piece of wood, which slightly scorches by the contact. By degrees the plate becomes cool, and acquires a dark-green tint, which gradually becomes lighter, and finally disappears, leaving the primitive image of the photograph now indelibly reproduced.

I cannot describe all the emotions that the spectator feels during this series of operations, which seems at every moment about to destroy so delicate a piece of work by exposing it alternately to the action of water and fire. The result is absolutely permanent pictures.

Not only are obtained enamels which reproduce with all their minutiæ the tints of the photograph, but it is possible to give to these enamels the most varied colors; and for this, recourse is had to metallic oxides of different kinds, as is done in the decoration of porcelain. These oxides, for the most part, before undergoing the operation of coction, are of an entirely different shade from that which they take on coming out of the muffle.

There is another method of giving to photography, confided to paper, if not the durability of the enamel, at least assurance against the action of light, of dampness, and of the decomposition of the chemical agents, which all tend to its destruction, etc., etc. I allude to Woodbury's Printing Process, now being worked by Messrs. Goupil & Co., in Paris.

Was not Mercier right when he says in his *Tableau de Paris* that most of the discoveries of the human race may be likened to Esopus replying to those who questioned him about his route, "that he did not know whither he was going?" Niepce and Daguerre, did they ever dare hope that their idea would reach so rapidly this important progress with its triple result: the perfection, durability, and popularity of the work which they were the first to make light furnish?

A celebrated American naturalist, although quite young, has arrived, since a few weeks, in Paris, to complete his materials for a history of birds. He will doubtless find in this process unhoped for resources for the completion of his ornithological labor, and be enabled to dispense with the engraver, almost always as *traditore* as the *traduttore* of the Italian proverb.

The publications of Mr. Elliot are already composed of a monograph of the *Piltidæ*, and of the *Tetronidæ*, and of a scientific history of the Pheasant, the first numbers of which have just appeared in folio size, and containing plates representing, from nature, birds for the most part in their natural size, views of the countries which they inhabit, and the vegetables among which they delight.

RECENT PATENTS.

The "Anthrophotoscope" is a contrivance familiar, doubtless, to some of our readers, but new to many more. It is a sort of a "peep show." Photographic images are cut free from the background very neatly, and fastened upright on a wheel which revolves, with a background on a different plane (say at an angle of 10 or 12°) from the figure itself. The table is then placed in a box or case.

To obtain the proper effect then, the pictures are viewed through a large magnifying-glass of long focus, minute fractions of an inch being converted into apparent distances.

The figures may be variously grouped, and the backgrounds changed at will in the following manner:

A variety of landscape views or other scenery, is arranged around the marginal portion of a large flat wheel, say two feet in diameter, that part of the wheel being bevelled or sloped back, so as to form an angle of ten or twelve degrees with the general face of the wheel, this bevelled space being, say, four inches wide from the periphery toward the centre. This wheel is placed on a horizontal axle. Close in front of this bevelled wheel, another thin wheel, say, eight inches less diameter than the first, is placed, but revolving independently around the same axis, the periphery of the smaller wheel just reaching the bevelled portion of the larger. In front of this, again, other thin wheels, all parallel to the first, are placed, revolving independently of each other, but around the same common axis; each wheel in succession being so much smaller than the one behind it, that a line touching their peripheries would make nearly the same angle with the vertical face of the wheel as the plane of the background on the larger wheel. In the edges or peripheries of these small thin wheels narrow grooves or slits are cut, vertical and parallel to the sides of the wheel, for slipping in and holding the vignette likeness. This being the mechanical arrangement, the full-length pictures are attached immediately to the inclined background on the large wheel (being held divergent to its plane by means of wedges), and the vignettes are held in their positions diverging from the background by slipping the lower edge into the vertical grooves formed in the edges of the smaller wheels, the relative position and angles of background and likeness being the same as for the stationary pictures. These wheels being suspended inside a box, a large magnifying lens of, say, four inches diameter and twelve or fourteen inches focal distance, or thereabouts, is placed in the front side of the box, opposite that point where the figures become upright in revolving. The light may be admitted through an opening in the top or sides of the box, and should be subdued by passing through a tinted glass. A movement of either wheel brings different figures in juxtaposition, and a movement of the large wheel backs the picture with a different landscape. To exhibit the most beautiful effects from this mode of arrangement, there should be several of the smaller wheels, graduated down as we approach the front in the proportion before indicated.

This device was patented in 1867 by Messrs. Rowell & Mills.

Recently an improvement in mounting the figures has been patented by Mrs. Sarah F. Mills, San Francisco, California, which consists of little uprights with points to which the figures are pasted and then stuck in the board. It is another instance of the inventive faculty developed by great Photography.

Another long way of accomplishing an object, has been patented recently by Mr. J. E. Richard, Columbia, South Carolina, which is a device for printing vignettes in the solar camera. It consists in the provision of such means, the same being the attachment of a curtain, by adjustable levers, to clock-work, in such a manner that precisely the proper motion may be automatically imparted to the curtain, including the moving of the curtain both laterally and vertically at the same time, or only vertically, or more or less laterally, as may be required, the aperture in the curtain being also provided with wings of various shapes, for the purpose of giving such form to the shading as may be desired, and the whole apparatus being placed within a box having tubes running through the sides, for the passage of the light, said box being also provided with means for setting it at a greater or less altitude, at pleasure, from the stand, in order to accommodate it to the height of the camera that may be used.

From the drawings it would seem that the contrivance would answer well, though complicated.

CLIPPINGS FROM THE JOURNAL OF A PHOTOGRAPHER.

II.

Friday eve.—This morning I attempted to make some negatives when my chemical-room was at a temperature of about forty. This I found an exceedingly favorable condition for making bad work. Hence I turned my attention to something else until the mercury stood at sixty-five (at which temperature I generally strive to keep it during working hours), and then proceeded again with much better success. I have always held that having the chemicals and the room they are worked in at a temperature between fifty and seventy essential to success, notwithstanding I have heard many operators affirm that temperature has nothing to do with making good work. I admit that the effects of temperature may be overcome by a variation of chemical combinations, but this is often more troublesome than simply raising the temperature of the room to the degree I have indicated.

Saturday eve.—To-day I have had to correct an irregularity that I never met with before. From some unknown cause, there appeared on the prints dark yellow spots that entirely ruined them. Sometimes these markings were on the albumen side, and sometimes on the opposite, which in either case were fatal to the vignettes, as they were sure to show through the paper after mounting and pressing.

After satisfying myself that there was nothing wrong in the silvering solution, the paper, and the manner of manipulating, I at once suspected the tank in which the prints were washed previous to toning. This I thoroughly washed and dried; but, in spite of that, as often as I used soft white paper, it would still show signs that it was not perfectly clean. It had been previously varnished with two or three coats of shellac, but the silver had so thoroughly decomposed it that there was no use in trying to get it clean except by a fresh coat of varnish. This I gave it, and all my trouble vanished immediately.

This bit of experience teaches me that it is not always economy to use wooden dishes because they cost less than glass or porcelain, for they often prove the dearest in the end.

I have also found some difficulty in working some collodion that I made up more than a month ago.

I used Anthony's cotton, dissolving six grains to the ounce of equal parts of alcohol and ether, and sensitized with five grains of iodide and 2½ grains of bromide of cadmium. After standing a few hours, it turned a deep red color. Finding, by several experiments, that I could get no satisfactory negatives with it, and judging from the speedy change of color, I was induced to think the ether was not good. I therefore tested it with iodide of potassium, and finding it remain colorless, I took some blue litmus paper and placed it in the box of cotton from which I had been using. It speedily became red. Here, said I, is the cause of all my perplexity; so I took the cotton and thoroughly washed it, first in water then in alcohol, and dissolved and sensitized it in the same manner I did the other. In this there was no tendency to change color to any great extent; and yet, from some unknown cause, it still worked badly. Hence I set it aside, and obtained other cotton from the same stockhouse, which I used with some of the same alcohol, ether, sensitizing agents, negative bath, and developing agents. This experiment proving good, I was more than ever convinced that it was the cotton which had been the cause of all the mischief.

The first and second lots being useless in the condition they were, I put them together, and added about half an ounce of carbonate of soda, agitated the contents for a few minutes, and then set it aside to settle. The next morning I carefully decanted off three-fourths of it, and made another trial, which, to my surprise, proved every way better than any other of the samples (of collodion) I had on hand. That these might not be lost or set aside (which they were likely to be while there was anything better in the house), I put them all into a large bottle, agitated the contents thoroughly, and set it aside to settle. I then mixed an equal quantity of this with that which I had treated with carbonate, stood it aside for a day or two, and then made a trial with it. This proved the most successful of all; so that I have continued to use this mixture with the most perfect ease and certainty, and during the best hours of the day I have found no occasion for redeveloping,—a thing I always avoid when possible.

Having in these experiments consumed my entire stock of plain collodion, I immediately dissolved another ounce of cotton in equal parts of alcohol and ether, in the proportion of six grains to the ounce. In this way I have found, by manifold experience, I could keep it any length of time in a much better condition for immediate use than in any other way; for, by thus standing, it becomes thoroughly settled, and can be used after sensitizing in less than half the time required for collodion that is iodized immediately before or after dissolving the cotton. By this means, too, I have been able to entirely dispense with the trouble of filtering, if carefully decanted from the stock-bottles containing the plain and iodized collodion. G.

"La Patrie" (Paris) in commenting upon the permanent printing processes, says: "Poiteven is the Christopher Columbus of the great discovery, but Woodbury has made himself the Americus Vespucius!"

WRINKLES AND DODGES.

Procure a wide-mouthed jar, holding, say, a pint, and fit it with a cork, with a hole in the centre, through which fit the neck of a rubber funnel. Put a cork in the upper end of the funnel neck also. Then cut the bottom out of a three-ounce bottle, and about one-half of the neck off. This suspend (by means of a copper-wire frame) from the under side of the cork, by means of wire-hooks, so that it can be detached for cleaning.

To use it proceed as follows: when clean, put some cotton in the neck of the bottle, put it into the wire frame, and hook it to the cork, then force the cork down tight, and pour collodion in through the centre tube until the small bottle is full; then cork it, and let it filter. This can be done until the collodion reaches the neck of the small bottle.

It works well, and is easy to clean. A wide-mouth bottle will do instead of the jar. A. E. Turnbull.

Upper Sandusky, O.

For Retouching Negatives the following mixture will be found capital:

Make two solutions.

I.

Nitrate of silver,	240 grs.
Water,	20 ozs.

II.

Pyrogallic acid,	20 grs.
Water,	30 ozs.

Mix them together, and allow them to rest, say, two hours. Collect the reduced silver on a filter; wash and dry. Now mix it to a paste, with good, thick, negative varnish, and dry again.

To use it, take of—

Alcohol,	½ oz.
Oil of lavender,	½ oz.

Mix them together. Dip the brush in the last mixture, and moisten the dried pigment and apply to the negative. This mixture having a solvent action, care must be had not to dissolve the varnish with it.
B.

I SAW in the *Photographer* a simple plan for saving silver, which is excellent, having used the same for a number of years, namely: the old hat plan. But I always use two hats instead of one. The first year I used one hat; but the second year the thought occurred to me that all of the silver was not saved, so I procured two hats, and put one inside of the other. The result was, on working up my waste, that I had three pounds more silver than I had the first year, with about the same average of business.

FRANK K. HOUSTON.

PITTSFIELD, MASS.

HERE is another little *dodge* that may not be generally known.

Our printing-frames come to us fitted nicely for lying down *flat*, but we do not always want them in that position, and so resort to every means to place them in such a way that they will receive the light direct. This is especially necessary in vignetting, if we wish to form a nice even shade around the picture.

This difficulty may be overcome in a very easy manner, and save you forever the trouble of looking for something to rest your frame against while printing. Take a strip of sheet-iron half an inch wide, and double it, so that each end will reach two-thirds the length of the frame; make a hole in the ends, and, with a thin washer between, screw them on your frame By this means you can place your frames where you wish, and at any desired angle, securing thus the same result in every vignette.

Printing-frame makers would do well to observe this, for the additional cost to them would not be five cents, and it would save us a great deal of trouble.

JOHN J. BURKE.

STERLING, ILL.

MR. H. T. ANTHONY recommends the following as an excellent developer, which may have been forgotten by many:

To one ounce of a warm 10-grain solution of gelatine, add three drops of a 15-grain solution of tannin, shake well until re-dissolved, when add one drop of ordinary iron developer, and it is ready for use.

To keep the gelatine, add a few drops of formic acid.

SALAD

For the Photographer.

The National Association grows in membership constantly. Are *you* a member?

THE "ARCHIV" says, mechanical-printing processes are springing up on all sides.

THE history of the life of Albert Durer is to be published soon, illustrated by the carbon process.

"THE MITTHEILUNGEN" (Dr. Vogel's) presented its readers with a specimen-print by the Woodbury process, recently made by Messrs. Goupil & Co., in Paris, owners of the patent for France.

THE RELIEF FUND is being encouraged by all those who buy the stereographs of the late Exhibition, and the group of the members made in Boston. We hope they will be purchased liberally.

"THE PHOTOGRAPHIC NEWS" of 24th September, was accompanied by a carte-portrait specimen, by Albert's photolithographic process, very pretty in quality and color, but still not up to what we want it to be.

"TOO SCIENTIFIC."—A gentleman from New York who reads our Journal regularly, looking over our September issue, saw first our articles on the *Eclipse*, and then another on "Comets and their Causes." This was too much for his patience to bear, and looking up to us he said, "Your Journal is getting entirely too scientific. Not one in a thousand of your subscribers will know anything about 'comets.'" If *there be* one in a thousand of our practising subscribers so *un*-"scientific" that he *don't* "know anything about comets," a happy man is he. So *we* think.

"CARBON PHOTOGRAPHS of drawings by the old masters are announced on exhibition in Boston. They are probably an imitation of John Neal's Charcoal Sketches."

The above laughable item we clip from one of our city daily newspapers. The ignorance that exists concerning the progress of photography among the *secular* press, is overpowering. Mr. John Neal would be flattered, indeed, if he could reproduce the works of the old masters, in drawing and color, so well as does Mr. Brown by the carbon process.

THE STUDENTS at Yale College annually elect a "Photographer to the College," and one of their party to conduct the business between the students and the photographer. A whole evening was devoted to this business recently. The profits of the competitors for many days, were smoked away in fragrant *Habanos;* and affecting speeches were made, one party actually weeping over his own eloquence. Before ballot, all the competitors but two withdrew. The vote finally stood Sarony thirty-two, and Prescott (one of our subscribers) sixty-two. We congratulate the successful man on receiving such an honor. His pictures will be Yale-owish in spite of vigorous washing. He cannot help it.

A YOUNG IRISHMAN and his "darlint" came into my rooms a few days ago to have their pictures made.

"Ye have ye's drawn furst, Biddy," said Patrick.

So after much trouble she got her toilet arranged and I put her into a graceful pose. While I was gone into the dark-room, Paddy, in walking about, happened to see her image on the ground-glass in the camera. He was spell-bound for a moment, and then recovering himself, shouted,

"*Git up out of that! Git up, Biddy! For the love of ould Erin git up! The spalpeen has ye standin on yer head! Git up!*"

The noise attracted my attention, and emerging from the dark-room, I soon comprehended the situation, but before I could explain, he left with Biddy, swearing vengeance upon any one who could offer such an unpardonable insult to his "darlint."

J. K. H.

IN Chambers's "Information for the People," vol. i, 1847, the following curious prediction is made:

After describing "Photogenic Drawing," *i. e.*, daguerreotyping, the editor says: "Various attempts have been made to adopt it to the sketching of miniature portraits from life; but though likenesses are obtained, they have a dull, leaden hue, and the countenance has a deathlike, unpleasant appearance. Besides, as the slightest movement of the head, while sitting, or even the winking of the eyes, causes derangement in the action of the sun's rays, all representations from life have less or more a *muzzy* or confused appearance. We have seen miniature likenesses taken on paper prepared for the purpose, instead of plates, but they wanted the liveliness and force of likenesses executed with the pencil To all appearance, photogenic drawing will be limited, in its utility, to the taking of representations of buildings or scenes in still nature, to be afterwards copied by nature."

How strange that such a prediction should be made when photography was seven years old! Will any one *now* predict that we shall never photograph in natural colors?

Editor's Table.

PROF. HENRY MORTON, PH. D., has been elected to a Professorship (of Chemistry) in the *University* of Pennsylvania, which we are very glad to know. It is a most deserved honor.

THE Prize Sets are now ready, and those who are willing to learn would do well to get them and study them, with the remarks of the judges. One can learn much from *imperfect* as well as *perfect* work, and in these sets there is opportunity for doing both. There are *thirty-seven* in all, and we have fixed the price at $4.50 per set, as before stated. The Portrait set only, $2.25. *Genre* set $1.75. Landscape set $1. Post paid. As we have said, the sets are now ready for delivery, neatly mounted, cabinet size.

January, 1869, *copies of this Journal* are badly wanted by us to make up files. Parties having copies to spare will be paid 75 cents for them by mailing them to us prepaid, or 50 cents per copy if the prints are removed. Those who do not bind their copies would oblige us very much by sending as above. Write when sending them.

The Albion Albumenizing Company.—In our July No. we issued a landscape view by Mr. G. W. Wilson, of Aberdeen Scotland, which we stated was printed on the "doubly albumenized paper," manufactured by the *Albion Albumenizing Company, Glasgow*. Since then, the agent of the company has informed us that the prints were *not* on their "*doubly* albumenized," but on their "*singly* albumenized" paper, and desires us to correct what might be a false impression. Some prints he sends on their "doubly" paper, are the perfection of albumen prints,—exquisitely soft, yet brilliant, and rich in tones, and fine in every way.

We are glad to make the correction, as the paper deserves it, though we considered Mr. Wilson's prints very fine.

"The Sunday Magazine" is being reprinted in this country by Messrs. J. B. Lippincott & Co., Philadelphia. It enjoys the most estimable reputation of any magazine abroad, and its full-page first-class illustrations add much to its attraction for the photographer. Much instruction may be had from them as art-studies.

We are in receipt of several copies of the new photographic journal published in Amsterdam, Holland—*De Navorscher Op Het Gebied Der Photographie*, edited by Julius Schaarwächter, Esq. The July issue contains a view of a very pretty rural landscape, by the editor. We welcome the new journal, and gladly exchange with it.

We acknowledge, with thanks, the following: From the author, *The Application of Photography to Military Purposes*, by H. Baden Pritchard, of the General Photographic Establishment of the War Department, London; from Prof. C. Piazzi Smith, the *Report* to the Board of Visitors of the Royal Observatory, Edinburgh, April, 1869; and the Trade List of newspapers, periodicals, etc., from The American News Company, New York.

Pictorial Effect in Photography: being Hints on Composition and Chiaroscuro, for Photographers, to which is added a chapter on Combination Printing. By H. P. Robinson.

We have received a few copies only of this excellent book. We shall hope to have enough to supply our readers by our next issue, when we shall review it fully. It is illustrated by photolithographs and woodcuts, and a specimen by the silver, carbon, and Woodbury processes; all very beautiful.

William Craig.—Your enamel crackles, and is inferior to that made in the United States.

Ferrotype Society.—The ferrotypers of this city have organized a society with a view to improving their art and securing uniform prices. We wish them success.

"Bon Ton" pictures are a sort of ferrotypes, we are told.

University of Pennsylvania, Laboratory,
Philadelphia, October 19, 1869.

E. L. Wilson, Esq.

My Dear Sir: Being anxious for the due credit of all who were concerned in obtaining the valuable results secured by the Philadelphia party at the late eclipse, I take the liberty of drawing your attention to the fact, that in your otherwise admirable report, the name of Mr. J. B Leisenring, Galesburg, Illinois. is omitted, who, at Burlington. contributed most valuable services, and who is spoken of very highly in the reports made to me by Prof. Mayer, who had general charge of the Burlington section of our party, and by Mr. O. H. Willard, who managed the photographic department. Mr. Leisenring, was one of those self-denying laborers in this important work, who sacrificed their own pleasure to the good of science, by accepting a station in the dark-room, and with his companions deserves especial mention and high honor for his devotion.

Very sincerely yours,
Henry Morton.

We are very glad to be reminded of our omission in Mr. Leisenring's case, caused entirely by our forgetfulness, and the fact of his joining us after we left home, and to indorse Prof. Morton's estimate of his services.—Ed. P. P.

Mr. A. Matthews, Lisbon, Arkansas, subscribes to our Journal; says he is over seventy-one years of age, and is just learning the photograph business as a means of livelihood. Much success to him and thanks for his picture. We think he must be "the oldest man" on our list.

The parties who competed for the prize, seem to have secured the handsomest ladies they could get for their subjects.

The Right Way.—A correspondent in Texas sends his circular, stating that he has a "first-class stereoscopic outfit" for all sorts of out-door work, and, to introduce and popularize that sort of business, sells stereoscopes very low. His circular looks enterprising, and, no doubt, he is making his plans pay *well.*

J. M. Elliott, Columbus, Ohio, Messrs. J. J. Burke, Sterling, Illinois, and H. L. Bingham, Kalamazoo, Michigan, have all received premiums for their work at their several State Fairs. Mr. Elliott received first premium for best large photograph; ditto for best twenty-five cartes of children, and ditto for best twenty-five cartes of adults. Mr. Bingham received six first premiums, viz., for life-size, water-colored work, largest collection of cabinet, card, and India-ink work. Mr. Burke for "Rembrandts" and other work.

A subscriber, in Connecticut, says: "My failing to renew my subscription for three months after it expired, has cost me $25 loss. Please send back numbers, and I won't drop it again."

Mr. G. Harvey, Photographer, Minneapolis, Minnesota, died July 18th.

On page 316, September number, Mr. Newton, at the close of his article, says: "If the prints are too *purple*," etc., etc. It *should* read, "if the prints are too *warm*," etc., etc.

Mr. Ferd. Beyrich, the eminent German chemist, of Berlin, is deceased. He was a man of great influence and usefulness, and cannot be replaced readily.

Mr. John Dunmore, one of Mr. J. W. Black's operators in Boston, has just returned from a photographic trip among the icebergs in the Arctic regions. We hope for some interesting details of his journey.

We are indebted to Mr. J. C. Browne for a very fine picture of the Eclipse Observatory occupied by a section of the Professor Morton Expedition, at Ottumwa, Iowa, and for a little gem of a view near Radnor, Pennsylvania. The work of both is very fine in every way.

Mr. Wellington Watson, Detroit, Michigan, has favored us with some cartes and cabinets, in chemical effect, and, in most instances, in arrangement of subject, very fine. In others, good *intentions* are apparent, but they are not carried out. In using drapery over the head of a subject, care should be taken not to distort the side of the face from the camera by shadow. Also, when a hand is introduced in a vignette, it should be *very carefully posed*, and receive particular attention in lighting.

Mr. William B. Holmes, 555 Broadway, New York, has favored us with photographs of the Luther Monument at Worms (Rhine), which are part of a series of very beautiful Rhine views, lately published by him. Also cabinet size groups of the Oxford and Harvard Crews, taken by Sir Aubrey Paul, Baronet, before the late race. They are finely taken, and will doubtless be largely sold.

Mr. William Kurtz, 782 Broadway, New York, has again favored us with some specimens of beautiful and artistic work, among which are portraits of Madame Parepa Rosa, Mr. William Notman, Edward Anthony, Esq., and others. Mr. Kurtz has partly yielded to our proposal to sell his specimens through an agent, that they may be studied by the trade.

We take a great deal of pleasure in examining the prints that are sent us from time to time, as we are thus informed of what is going on. We confess to sadness and disappointment sometimes at not seeing better work. To repay for this, when looking at the views sent us from afar, we are enabled to take mental journeys over countries new and strange to us. This pleasure has just been given us by Mr. E. Herbruger, Jr., Panama, who has sent us 8 x 10 views of the following, well taken:

Part view of Landing, Panama; Panama Railroad Company's Mess-house, Aspinwall; Saint Francis Monastery, in ruins, city of Panama; Front Street, Aspinwall, showing "Hotels;" front view of Paraiso Station, P. R. R.; Terminus of P. R. R. in Panama; Paraiso Station, P. R. R.; Panama Railroad Company's Bridge over the Chagres River, near "San Pablo Station;" San Francisco Monastery, Panama; San Pablo Station, P. R. R.; Pacific Steam Navigation Company's Works, at Taboga; Front View of Cathedral, Panama; Statue in Memory of Thomas Herrera, General of Colombia, erected in the Cathedral Square, Panama; part view of Landing, Panama, at low tide; part view of City of Panama at low tide; Panama Railroad Company's Chapel, Aspinwall.

They are exceedingly interesting and valuable.

Thanks to Mr. H. Noss, New Brighton, Pa., for some very creditable stereographs.

We have received the following: A whole-size "Rembrandt" and cabinet from Mr. William H. Pope, Newburgh, N. Y., on Trapp & Münch's albumen paper; cabinets from Messrs. Goodridge Brothers, East Saginaw, Mich., and S. T. Wiggins, Winona, Minn.; "Rembrandt" cartes from D. C. Dinsmore, Dover, Me.; Eclipse pictures from S. W. Beers, Walla Walla, W. T., Dr. J. Gardner, Bedford, Ind., Dr. J. C. Mills, Pen Yan, N. Y., and an excellent one of totality from Mr. J. M. Scott, Vincennes, Ind. Mr. Scott secured the corona finely. Dr. Gardner's paper will be read with interest in another column.

THE

Philadelphia Photographer.

Vol. VI. DECEMBER, 1869. No. 72.

Entered, according to Act of Congress, in the year 1869,
By BENERMAN & WILSON,
In the Clerk's office of the District Court of the United States for the Eastern District of Pennsylvania.

OUR NEXT VOLUME.

With the present issue, the subscription of a great many of our subscribers expires. We dislike to make the statement, but such is the fact. The past year has gone by so rapidly that we can hardly realize that a new one is upon us. Shall we have all our old friends to greet every month of the year 1870? We cannot but hope so. We have put forth much effort to entertain, and please, and profit them, and yet we feel that, if we could do it over again, it would be much better done. We see wherein we have lacked, and we will endeavor to do better. Will you try us?

Our effort will be, in the first place, to give better pictures. Those that have appeared in this volume, we were mainly proud of when they were done, but better work is made now, and our subscribers shall have the best we can get hereafter. As an earnest of this, the following may be expected during the early part of the year: A cabinet-size specimen, from an Italian negative, of a rustic portrait, by the Woodbury process; Mr. Griswold's capital *genre* picture, "Blowing Bubbles," to which, recently, the gold medal offered by us was awarded; a portrait of an admirable subject, an old gray-haired man, by Mons. Adam Salomon, the great Paris photographer; a "Rembrandt" picture, by Mr. William Kurtz, New York, which the advance proof shows us is admirable; a cabinet picture of exquisite composition, by Messrs. Lœscher & Petsch, Berlin; a picture from a double negative, one end retouched, to show the effect and advantages of retouching the negative, by Mr. J. F. Ryder, Cleveland; a shadow-picture of a very beautiful lady, by Mr. W. J. Baker, Buffalo, N. Y., to be followed by others of equal quality and beauty. Secondly, we shall try to get more papers from the same practical men who make the pictures, and others, thus adding value to each number. Mr. Simpson will continue his *Notes*, Dr. Vogel his Correspondence, and Mr. Lea and Dr. Towler will also contribute monthly. We shall endeavor to keep our patrons fully posted in the progress of the art all over the world, warned against all that would hurt their interests, and we shall join in all that will be of service to them.

We shall adopt a new method of arranging our address-books, which, with new postal arrangements secured, will, we think, prevent the delay and loss of our numbers now so frequent. We cannot help the art proclivities of route agents and others, who seem to appropriate the property of our subscribers, but we think we can partially remove temptation from them.

We think the coming year will be one of great progress in our art, and we shall try to keep up with it. We ask your co-operation, for progress depends greatly, for its extent, upon the freedom with which information is communicated from one to the other. Our pages shall always welcome contributions from our *working* readers. Send us what occurs to you as useful in your practice, old or new. We know that what is old to one will be new to another, and, perhaps, the publication of an old dodge will help many out of trouble.

Our premium list, as will be seen by our prospectus, has been modified and enlarged. We desire that, all who can, will take advantage of it, and, if what we offer does not suit you in kind, we will be glad to meet your wishes if we can.

We shall cause to be stamped, on the corner of the numbers sent to those whose subscription expires, "*Subscription Expired.*" Please oblige us with an early renewal, and keep us busily occupied sending you the premiums. We wish you all a cordial, a happy, and prosperous New Year.

COMETS.

BY JOHN C. BROWNE.

I KNOW of nothing more vexatious in all the chapter of failures to which the photographer is liable, than to be pursued by Comets; not small, insignificant ones, such as are often met with in ordinary experience, but comets with long fiery tails, darting about in all directions over the negative, and effectually spoiling it.

During a recent visit to the Delaware Water-Gap, I became acquainted with what was to me a new variety of celestial visitors, which from its peculiar appearance I shall designate as the T shaped comet, and note its appearance in October, 1869.

My chemicals were in as perfect a condition as it was possible to make them, and I fondly hoped for a number of good negatives, as a remembrance of the fine views in the neighborhood. But the first plate dipped showed, upon development, the presence of these disagreeable markings. Plate after plate was exposed, and developed with the same result; but the difficulty increased so rapidly that I was fairly driven from the field a victim to comets. My apparatus was packed up, and with much reluctance I gave up the day as lost, and returned to the hotel. After much thought upon the subject, I filtered and tested the silver solutions, washed out the dipping-bath, made new collodion, and trusted to better luck next day. But, sad to relate, my experience was less successful than the first day, and I returned again without a single good negative.

I dreamed of comets that night; and awoke next morning determined to find out the cause, if possible. Aided by Mr. Jesse A. Graves, who kindly allowed me the use of his dark-room and the many conveniences therein contained, we together examined all my chemicals and apparatus carefully. The chemicals were found in perfect condition; but after many experiments the trouble was proved to be in the dipping-bath, which was of hard rubber, 7 × 9, having a water-tight cover. Although I had used this bath for about four years, probably not more than seventy-five plates had been dipped in it during that time, and they at long intervals. Now I am satisfied that the cause of all my trouble was occasioned by the corners of the glass plate touching the sides of the dipping-bath, and rubbing off some particles of bromo-iodide of silver, which had collected there. Often, when working in the field, I have, to save time in sensitizing, moved the plate by raising and lowering the dipper, thereby hastening the time of immersion. Although this is done very gently, so that very little scraping occurs, still it is impossible, in the constrained position of kneeling upon the ground, not to touch the sides occasionally.

In using hard rubber baths, it has always been my practice never to allow the silver solution to remain in it over night. The bath-holder being thoroughly washed in running water for some minutes after the silver solution had been poured out, it was then allowed to remain full of pure water until used the next time, in each case draining off all the water before pouring back the silver solution. Before taking this bath into the field, I had carefully cleaned it with a piece of sponge tied to a stick, and drained it well before using. The silver solution was carried in a large glass bottle. To support my assertion that the trouble was occasioned by the dipping-bath, I would say that after the same bath had been well washed, and the silver solution poured into it, a plate was dipped, and allowed to remain perfectly quiet until coated; upon development, one single comet was noticed. By observing the same rule in dipping the plate carefully, and letting it rest until ready to put in the holder, I am glad to say that not a single comet troubled me during the rest of the expedition.

From my first experience in photography, ten years ago, I have used hard rubber dipping-baths for landscape work, as they take up less room in packing, and are lighter to carry, and I have never before had cause to doubt their reliability, provided the silver solution was not permitted to remain in contact any length of time. But my recent comet-seeking experience has opened my eyes to the fact that they are not to be depended upon, and I ask photographers to take warning, lest they suffer from the same cause.

For the future, all of my dipping-baths shall be made of gutta-percha, or glass inclosed in a wooden case with a water-tight cover, arranged so that the top may swing back at any angle required to place the bath in position, similar to a small covered bath made for me by Mr. Joseph Zentmayer, of Philadelphia, and described in the *Philadelphia Photographer*, vol. v, page 201.

PHOTOGRAPHIC MOSAICS, 1870.

For obvious reasons our mouth is closed so far as criticizing this little year-book, for the coming year, goes. We may state, however, that *it is ready*, and we hope for as much good to be done by it as possible.

A brief *résumé* of its contents may not be out of place here. Several of the most talented of our profession have contributed original articles to its pages, which have the merit of freshness and good practical sense.

Mr. William Kurtz, New York, heads the list with an article on *Backgrounds and Reflectors*. We have frequently alluded to Mr. Kurtz's artistic method of lighting and managing the subject. He condemns the practice of introducing meaningless and unharmonious backgrounds, and supplies remedies. He asserts that "photographers must be aware that they are to produce effects by different means than those employed by artists" (i. e., *painters*). Therefore it is better to do well what belongs legitimately to photography, than by innovations to aspire to something devoid of all artistic rule. He follows with certain rules for selecting *proper* backgrounds for all styles of pictures and all classes of subjects, and also the method of using the much-*ab*used reflectors.

Mr. W. J. Baker, Buffalo, New York, follows with an article on *Glass Cleaning*, which is as thorough as that part of the photographer's labor should be. He first rehearses a list of the "accidents" or failures that all of us are prone to meet in our manipulations, and then says, "Such accidents have, no doubt, led us all to study the avoidable causes of failure; and one of the first discoveries is, that absolutely clean glass is the *sine qua non* to success in all the after operations." With this for his text, he follows with his method of cleaning glass, in all its details, after which, full instructions in the way his plates are albumenized for use before coating, are given.

Mr. George H. Fennemore, Philadelphia, follows with *Dark-Room Manipulation*. Mr. Fennemore's articles are eminently practical always, as our readers know, and in this he seems to cover all the troubles that occur in dark-room manipulations; showing their causes and remedies most satisfactorily.

On a Permanent Toning Bath, is the subject of the next chapter, by H. T. Anthony, Esq., New York, in which the author gives the details of a toning process, which he has used for four or five years without change of solution. Mr. Anthony's paper makes us regret that we do not more frequently hear from him in these pages. He is followed by one of our most talented amateurs, Mr. J. C. Browne, Philadelphia, on *Landscape Photography*, who informs us how to prepare for outdoor work; how to work in the field; how to care for the plates after exposure, and how to avoid the many evils which attack the novice and inexperienced, in working out of doors. It is a very able and useful paper.

Mr. J. H. Kent, Rochester, New York, comes next with *Suggestions on Posing;* which show up the "extra difficulties" of the studio, and how to overcome them, in graphic style. Under the head of "extra difficulties," he classes "ignorant," "fidgety," "wayward," "buckram," "conceited," "passive," "imbecile," "dogged," "martyr-like," "suggestive," "last effort," and "looking horridly" customers—and—and "*babies.*" For the last-named class, he suggests that the photographer "provide jumping jacks, barking dogs, tin whistles, Jews' harps, and a small organ, and to be able *yourself* to turn into an acrobat, gymnast, or long-tailed monkey, at the shortest notice." For the former classes, "see your rocks ahead," then be amiable, converse freely, etc., etc.; and "at the same time, *work*, and work to a purpose." The management of the sitter, posing and lighting, is fully explained, as practised by him.

On the Mounting of Prints and the Chemistry of Mountants, by Mr. V. G. Bloede, New York—inventor of Gum Regialina; an eminent photo-chemist, and well known to our readers—is a practical paper on the evil of bad mountants or "pastes;" and several valuable recipes for making starch, gum, and gelatine pastes, and how to keep them sweet and clean.

Professor Towler's contribution is on *Practical Observations about Lenses and Cameras;* on which subject his long experience enables him to give much valuable information.

Mr. William Notman, the eminent Montreal artist, follows with a paper on *The Study of Art Recommended to Photographers;* in which he maintains the importance of photographers studying the rules of art. He says that "the image lies in the block of marble, only requiring the sculptor, with mallet and chisel, and educated thought, to knock away the superfluity of material, developing by degrees the preconceived form, till at length it appears in all its glory and beauty." But, he writes, "In photography, alas! we too often have among its votaries those who have omitted one of its requirements—*education.*" He then suggests plans by which the humblest photographer can educate himself at small cost, in such principles of art as will enable him to better light, pose, and *com*pose his subjects; a matter which now needs more attention than any other at present among photographers.

Additional Rays to Photographic Light, by Mr. David Duncan, New York, is the next paper, full of useful hints and recipes for every-day use; followed by *Dry Plate Photography*, by that persevering disciple of the *dry*, Mr. J J. Bardwell, Detroit, Michigan, who recommends the coffee process as the quickest and the best.

Now follows a series of articles by Messrs. G. Wharton Simpson, H. P. Robinson, and other eminent men in England, France, and Germany, condensed and extracted from the current photographic literature, on out- and in-door work; apparatus; the studio and its construction; exposure; development; residues; stains; collodion, and every known manipulation. All short and to the point, and a full list of which will be found in the advertisement of the book.

Among these are several other original articles, written especially for *Mosaics;* the first being *A Few Facts* on glass, collodion, developer, fixing, lenses, cameras, backgrounds, and posing, by Chas. Wager Hull, Esq.; together with an illustrated method of producing "Rembrandts" and other effects. An admirable and useful contribution for every class of workers.

To Work and Keep a Nitrate Bath Neutral, by William Bell, Philadelphia, is a very useful paper also. Some photographers maintain that a bath cannot be worked unless acid. We always hold, and Mr. Bell seems to prove, that a neutral bath is to be preferred.

Mr. O. G. Mason, New York, describes a very easy and economical method of *Photographing Small Objects for the Stereoscope*, with a drawing of the apparatus he uses. The demand that now exists for "anything that looks pretty," for the Stereoscope, is a guarantee to any one who will give attention to Mr. Mason's suggestions, that he will meet his reward.

The Tea Dry Process, by H. J. Newton,

Esq., New York, is the subject of the next original paper. Mr. Newton's results with his process, are charming enough to induce any one to try it.

On Pin-Holes, by Mr. B. W. Kilburn, Littleton, New Hampshire, is the last original contribution. Mr. Kilburn asserts that, after a bath is once used, that if left in the light while filtering, pin-holes are the inevitable result.

We have now detailed more fully than we expected to, the *contents* of *Mosaics* for 1870, and we hope for it the same liberal demand by employers and employed that has favored it heretofore.

THE NEGATIVE VARNISHED AND UNVARNISHED.

BY PROF. J. TOWLER, M.D.

I HAVE had negatives exposed to the direct light of the sun, both varnished and unvarnished, for now about six months, and have watched the effects produced by such an exposure. All the unvarnished negatives have gradually become more intense, and some of the finer markings have become obliterated, by a species of deposition that has filled up the interstices or interspaces. One of the unvarnished negatives was developed with a cuproferric developer; it too, is now more intense than when recently developed, and has a bluish-black color by transmitted light, and a copper color by reflected light.

During this period of exposure, the varnished negatives have undergone no change of color or intensity. The varnish used was a simple solution of bleached shellac in alcohol, filtered through paper. It is evident, therefore, that the varnishing of the negative protects the film from what we may denominate the aerial or atmospheric influence, which influence, I think without any doubt, is the cause of the deterioration of the dry plate, even when perfectly isolated from light. It becomes now a problem to be solved, or at least a question to be answered in positive terms, which varnish has the most protective efficacy against the changes produced by the atmosphere. This question can be answered only after a course of careful experiments.

But the negative has to be protected against the wear and tear of the printing operation; and for this purpose, the varnish, when dry, must not soften or become tacky when intensely heated, nor dissolve in water. Thus the varnish for the printing negative must be different from that applied to the dry plate before exposure, for in the latter case, it is necessary that the varnish be soluble, in order that the developer may permeate its film, in order to arrive at the collodion surface. Thus, then, we have two sorts of varnishes indicated; one set for printing negatives, and the other for preservatives of dry plates, as they are called,—the former are composed of certain admixtures of the gum-resins, and the latter of the soluble gums, gelatine, sugar, starch, albumen, and a drying or astringent material, to prevent deliquescence. It is not our intention in this article to point out which varnish or preservative is the best, and this for a simple reason,—we do not yet know which is the best.

There is, however, one property of the negative varnish which has never yet been hinted at, and this probably because it has never been observed. I will call your attention to it now, first requiring you to make the experiment yourself. Select a first-rate negative, cabinet size, for instance, a portrait, and take a print of it before it is varnished. Now prepare the following varnish, or use any other good light-colored varnish.

Alcohol,	32 ounces (1 quart).
Bleached lac,	4 "
Sandarac,	2 "
Canada balsam,	4 drachms.
Essential oil of lavender,	1 ounce.

As soon as the gums are dissolved, filter the solution through paper or a fine sponge, and varnish the negative in the usual way. Let the film indurate thoroughly in the air and then varnish again. Repeat the operation at least six times for the experiment in question. The film at this stage has the appearance of an enamelled surface. Take a print from the negative thus prepared and compare it with the former. You will find a decided difference between the two prints, and the latter in general will be the most admired. By increasing the number of coats of varnish the print becomes gradually more soft. But there is a limit to this operation, beyond which the print grows worse and worse; and finally, all the fine and sharp marks become obliterated.

The White Mountains and Mount Washington Railway.

Far north, in the old Granite State, rises a cluster of peaks, the highest of which—Mount Washington—exceeds in altitude any of its kindred, east of the Rockies.

Our vacation, this year—the few weeks our imperious Journal, and its attendant correspondence, allows us to be away—early in September, was spent in company with our friend, Mr. B. W. Kilburn, of Littleton, N. H., in exploring the beauties and wonders of that magnificent range. Mr. Kilburn has been familiar with the White Mountains since childhood. For twenty-five years or more he has trailed for trout in their lakes and torrents, chased the wild game through the forests and over the snows, and, latterly, has occupied much time in making negatives of the endless variety of scenery there, for the stereoscope. He was, therefore, a good guide as well as a congenial companion. A brief account of what we saw may not be uninteresting to our readers, inasmuch as our picture this month is not only an example of Mr. Kilburn's work, but is also a view of Mount Washington and the railroad ascending it.

Littleton is about twenty-five miles away from Mount Washington and about twelve miles from the Franconia Notch. Yet, on a clear day, from a hill back of Mr. Kilburn's residence, the Tip Top House on the summit of Mount Washington, and the Railroad cut, may be plainly seen with the naked eye, together with innumerable peaks intervening. This sight we were privileged to see once only, for, on other occasions, when we ascended the hill for a like purpose, the clouds were toying and playing around the summit so actively and densely that our view was obstructed. But that gave us *variety*, so we were not much annoyed.

Our first day at the Mountains was in the Franconia Notch. Our faithful horses carried us over the road with pleasant speed, and our eyes were continually feasted on all sides with beauty. The day was lovely. Its mildness was like that of mid-summer. The sky was clear and blue with us, while, afar off, we could see the sullen clouds hanging lazily in the valleys, defying the sun's rays, which struck them broadside in vain efforts to disperse them.

Our drive was "up hill and down dale," through the mountain roads arched by the stately pine and the curling birch, green and fresh as in June. Autumn flowers and blue and scarlet berries made the roadsides gorgeous in color, and it was *no cross* to bear, when, ascending the steepest parts, mercy for our horses prompted us to get out and walk part of the way. The Ammonoosuck sped along by us with busy haste, and its roaring and gurgling making the music for the occasion, added to the enchantment that seemed to surround us. Here and there through the trees, great heights would rise before us, almost defying our ascent, but, after mastering them and looking down upon them from greater altitudes, they seemed but hillocks humbly crouched at the feet of their superiors. In the distance Mount Lafayette was continually before us. Arriving at the Notch, we drove on through it past the Profile House and the Flume House to the Flume. There we left the carriage, the sweet harmonies leading us on through a pathway guarded on both sides by solemn rocks and assenting ferns. We soon reached the broad granite rocks, almost as smooth as glass, with amber-colored sheets of water spreading over them like the collodion upon the plate. Over these, by means of rustic bridges, we ascended the more rugged rocks until we reached the wonderful fissure called the Flume, which is only twelve feet wide at the narrowest part, and perhaps sixty feet deep. During the great earthquake that doubtless caused this fissure, a great boulder, wending its way down the mountain side, was caught and fastened between the rocks, where it still hangs, almost like the world, "on nothing in the air." If the rocky sides were to expand but an inch, down would go the mighty boulder, and a great natural curiosity would be lost. We walked under it, of course, but took care to keep one eye on it while watching our footsteps with the other. We also walked over it by means of a birch-pole bridge, and, while there, admired the industrious little stream which these great rocks seem to have opened to accommodate, as it sang along cheerily towards the sunlight We viewed it on all sides, and clambered down again. Half way down the Flume our companion pleadingly exclaimed: "*Oh! one more minute* for another sight!" and we turned about. It appeared too grand, too great to contemplate. Nothing broke the solemn stillness but the waters, and scarce a ray of sunlight intercepted the deep shadow, or lit up the moist caps of the mosses that lined the rocks everywhere. Long shall we remember them in their loneliness. At the entrance of the Flume we found a photographer busied making pictures of visitors.

We next visited the Pool, a great natural well as wide as it is deep, say one hundred and fifty feet, into which the amber mountain waters pour continually, keeping the average depth of water to about forty feet. It reminded one of the whirlpool at Niagara. From this we drove back toward the Profile House. "The Old Man of the Mountain," or the "profile" jutting out from the side of a great line of granite of awful height and quite perpendicular, was, of course, viewed for some time from different points. No series of White Mountain views is complete without one of this profile. It requires no imagination at all to see in the jutting rocks a profile of an old man with a benignant, patient expression, that makes one love it for the qualities it seems to possess. There he has rested, seemingly carrying the great weight behind him, for long ages past, the wonder of the thousands who study his countenance every year. Nestled at the base of the Profile Mountain lies Profile Lake, a delightful sheet of water, reflecting always the varied beauties around it.

It is not so wildly beautiful, however, as Echo Lake, which is about a quarter of a mile farther north. We took a sail upon its inviting waters; made the mountains about it ring again with the mountain-horn; dabbled in its crystal waters; feasted ourselves upon the reflections caught by it of all that it could reach; and were, finally, favored by the boatman with a discharge from his cannon. The echoes which followed were excruciating, and it would seem as if such an explosion would send the mountains toppling over each other for a mile around; but we were assured that the thing had been done for years without even causing a mountain slide. Further on we halted again to ascend Ball Mountain. You who have never climbed a mountain, imagine it, if you can. First through pathways shaded by stunted foliage, and crossed and re-crossed by oozing streamlets; then higher up among the decayed timbers until you come to the naked rocks, where the *work* begins. There are no straight pathways to follow. With your eye upon the summit, you clamber towards it the best way you can,—now on all-fours; again hauling yourself up by your staff, or leaping like a chamois from rock to rock; and woe be to you if you fall. But the clamber is well paid for by the mighty view that meets your gaze from the summit. The great heights that we ascended in the morning seemed to be but hillocks sleeping in the wide expanse below. The Valley of the Ammonoosuck lay outstretched before us, dotted with cultivated fields and farmhouses and mills, divided by the stream, whose name it bears, and its tributaries. Behind us, in front of us, on both sides of us, all around and above us, towered the named and nameless and numberless mountains, overpowering and overcoming.

The descent we found more laborious and dangerous than the ascent, and we were glad when it had been accomplished. At the base of the mountain there were groves of raspberry bushes, from which we picked the ripe, pink fruit to our satisfaction,—a feat which cannot be accomplished in this region so late in the season. They made a pleasant side-dish to our luncheon; and, after eating them, we drove back to Littleton, repeatedly stopping on the way, however, to review the glories we had left. We saw the sun set no less than six times on the way. This will be easily understood when we state that the road was a series of hills, and as we descended one the sun would disappear, and reappear again as we reached the summit of the next.

Our next journey was to Mount Washington, the Crawford Notch, etc., etc., which was a considerably longer one than the other, and took more days to make it. We started before four o'clock in the morning. All the garments convenient were needed to protect us from the cold. The stars were shining brilliantly, and no sound broke the silence but that of the noisy, ever-busy Ammonoosuck, as it sped along to give power to the innumerable mills on its banks. As we drove along, night began to gather up from the valleys the misty mantles in which she had clothed them during the chilly hours of darkness, and which, in the distance, appeared like huge banks of whitest drifted snow. Presently, feeling the influence of the coming day, they gently moved and rose to meet the sun, whose bright rays now flashed upon the mountain tops, lighting up their peaks with vivid gold, while the valley around us still lay shrouded in the dimness of early morn. Morning in its pure glory was soon upon us, and for hours we drove and walked up the hills and through the shades as before, reaching the base of Mount Washington at about half-past ten, in good time to make the ascent *via* the railway. And now, as this railway is the subject of our picture, while, in obedience to the telegraph, we wait the arrival of some dilatory passengers from the hotels below, let us state what led to the construction of this great wonder, and describe the plan upon which it is built. It is the invention of Sylvester Marsh, Esq., of Littleton, a very able engineer, and President of the road. To his courtesy we are indebted for much of the information below, and to his genius and enterprise the world is indebted for one of the greatest accomplishments of the age.

It has not been an uncommon thing for people to lose their way as they approach the top of the mountain; and as all doubtless know, quite a number of lives have been lost in making the ascent. In 1856, Mr. Marsh undertook to go up the mountain without a guide, leaving the base at about 4 P.M. Night overtook him, and it became very dark. He knew not where he was, but as ragged rocks rose above him he knew he had not reached the summit. By the aid of his hands he clambered up (as he has since ascertained) over the precipice directly west of the Tip-top House. He discovered the light in the window, and we need not say that he was thankful his steps were providentially guided in that direction. He immediately began to think of devising some plan of ascending the mountain with less fatigue and peril. First he thought of a stationary engine, with a rope in the usual way. One difficulty was to get an engine to the top; and then no rope or chain would sustain its own weight more than one-half the height of Mount Washington; and the use of two or three engines on the way up would be both dangerous and expensive. He then thought of a cog-rail each side, but in that case the track must be straight, without curves. That suggested the idea of a centre-rail, which would enable him to ascend. The great difficulty was to make it safe. This led him to the invention of the atmospheric brake, by the means of which the machinery is held to the track, and which we describe further on. He thought it desirable to do away with the use of all cast-iron in the construction of the road; so he studied out a way of making the cog-rail or ratchet of wrought-iron. After he made a working model, and was sure his plan was a success, he made it known to some railroad and other men. With two or three exceptions they all said the idea was absurd, and the plan visionary, and that Mr. Marsh had "railroad on the brain." He applied to the legislature for his charter in June, 1858, and found great difficulty in getting any member to bring it forward, they asserting that they did not wish to bring forward a bill the legislature would not think worthy of notice. Finally he persuaded a member to introduce the petition, and it created a laugh from nearly every one in the house, and some one offered as an amendment a railroad to the moon. To get rid of him they gave him a charter and the exclusive right for twenty-five years. He then talked it up till the winter of 1865 and 1866 with but little success, until he built a regular steam engine at a cost of five hundred dollars, weighing but seventeen pounds, and a track twenty feet long, which he set up in his office on a grade of one thousand seven hundred and sixty feet to the mile, the grade of the railroad up Mount Washington. On the car he could place one hundred pounds of iron, and push it up with forty pounds of steam. It then began to attract attention from railroad men.

In the spring of 1866 money was raised for the experiment. Mr. Marsh commenced in the forest with nothing but a bridle-path leading to the foot of the mountain. He constructed thirty rods, put on an engine weighing only four tons, and a platform car. With them he could take up fifty people. He had it on exhibition, inviting all the railroad men in the region to come and see its workings, which proved entirely satisfactory. The result was that several railroads were willing to join him as stockholders, and undertake to finish it. The road was completed' the first of July, 1869. They have carried over it all the material for building the same, and more than eight thousand people, without a single accident or the occurrence of anything to shake one's confidence in the perfect safety of this method of conveyance.

As will be seen by the picture, the outside rails are flat, and the same as on any railroad. The centre rail, where the power is obtained, is a cog-rail or ratchet, made of two pieces of angle-iron, with one and a half inch round iron for cogs—the two side pieces bolted firmly to the timbers. The engine has a cog-wheel or gear on the centre of the axle, which runs in the ratchet or cog-rail. The engine is geared down by putting the connecting-rod on to the shaft, with a six-inch pinion geared into a twenty-four-inch wheel on the main axletree. By this means the power is increased fourfold by the loss of speed. The engine is held to the track, to prevent it from riding or slipping out of gear, by friction-rollers, which run under the angle-iron. This projects over the timber it is bolted to. (See the picture.) The engine goes up behind the car, and down before it, with no coupling. The engine has brakes sufficient to hold the whole train, without depending upon those on the car. The atmospheric brake on the car (which, also, is sufficient to hold both car and engine) consists of two air-cylinders, one on each side of the car. The piston and connecting-rod is attached to the axle of the car, which has a cog-wheel geared into the centre-rail, so arranged that it cannot turn unless the pistons in the cylinders move back and forth, which are governed by letting the air out of the cylinders faster or slower, by means of stop-cocks.

Our readers must be convinced of the safety of this method. If the engine should leave the passenger car altogether, the passengers would be safe, for the instantaneous action of the atmospheric brake, would fix the car as firmly as the surrounding rocks.

Surely Mr. Marsh deserves the greatest praise for his wonderful achievement, which is, as yet, so little known. It required more than the thought of an hour. As early as 1861 he secured his first patent, and afterwards two others, for improvements on the first. Instead of meeting encouragement at first, he was, like Fulton, and Morse, and Daguerre, and other great inventors, laughed at. But he persevered, and lo! the result. His name will soon become a household word among the ten thousands who shall flock there to see what he has done.

Our picture was made since our visit there, a few rods up the road from the depot at the base of the mountain. There are thousands of more beautiful views in the country surrounding, but none more interesting. As will be seen, the line of the road is cut right through the forest (the remains of which lie on each side waiting to serve as fuel for the locomotive) and the rocks. The ascent is in a straight line for about a mile, as will be seen in the picture. It then takes off to the right, travels over the side of the small mountain hovering in the valley, and then meanders in the direction of the white line, visible in the picture, to the end thereof; thence to the right, until the very highest point in the picture is reached, which, if you can see a needle-point, you may see is the Tiptop House on the summit of Mount Washington, three miles from the depot, requiring about an hour and a half to make the distance between them.

A ride in this railway is one of the things which every American should experience before he dies. And now, the dilatory passengers having arrived, let us make the ascent. The foreground, wilderness and wildness that it is, is the tamest part of the ascent. Higher up, the moss-covered rocks, and ferns, and raspberry bushes grow in profusion. Still higher, the stunted pines, pinched and crowded by the naked rocks, intertwine their roots and branches, almost giving one a pain to look at them. Higher again, foliage is a scarcity, only here and there a few mosses and flowers finding a foothold among the rocks, spring up and relieve the desolation. Arrived at the summit, several hours were allowed us for dinner and to view the prospect around. The latter was somewhat obstructed by the clouds hanging below, but, by careful watching, when they separated, grand views of the earth below could be seen. Tuckerman's Ravine and the Glen House, were plainly visible at times, and the mountain ranges, towering one above the other, met us on every side. To get lost in one of those clouds would be terrible, and one could only be safe in remaining quiet until it had passed away. Although there is a summit, the mountain for a mile around looks just like it. We reached the highest point by climbing to the top of a pile of rocks. So we can easily conceive how Mr. Marsh should get lost. The week before we were there, a foot of snow lay upon the rocks, and two inches of ice hung upon the telegraph wires. And but three weeks before, in Tuckerman's Ravine, Mr. Kilburn very nearly lost his life by the falling in of a snow-arch, just after he had made a picture of it.

We found Mr. S. F. Adams, of New Bedford, Massachusetts, on the summit, making pictures of the visitors.

The descent was as charming as the ascent. Just below the summit, at Waumbek Station, the engine stopped for water. With Mr. Kilburn, we got off to take a peep down the Great Gulf. Imagine yourself looking down, perpendicularly, nearly half a mile—merely peeping over, while your companion braces himself and holds on to you, and you will have an idea of the Great Gulf. Below, the tree-tops seemed as smooth as the sandy beach. One could not endure the sight long without the brain reeling.

We dare not go into further detail. By all means go and see what we have seen. You will never regret it.

Arriving at the base safely again, a long drive to the Crawford House, was the next thing in order. It was moonlight and mild, hence most enjoyable. The Crawford House was reached by 9 P.M.; and, after supper, a moonlight walk and a clamber, on all-fours, up Pulpit Rock, followed; from the top we rolled great rocks down into the valley, listening to their thundering, and the noisy cascades around us. After about twenty hours *go*, our indomitable friend allowed us to rest, but only for a moderate time, for next morning early he had us ascending Mount Willard, before breakfast, to see the sunrise. Glad were we to take off our coats in making the ascent, and more glad to put them on again to protect us from the keen blasts on the summit, which we gained in good time to see the sun appear from behind a far distant mountain. In the valley below, we could see the Willey House, and far beyond. The mountains on each side form the valley, which gives one the idea of the hold of an immense ship.

The descent was made, and then we took to the carriage again.

Our readers would tire before we could tell of the wondrous gates of the Crawford Notch, barely wide enough for a carriage-road; the Elephant's Head; Beecher's Cascade; "The Old Maid"—another rocky profile, with a sharp, pug-nose; the Silver Cascade; the enchanting drive to the Willey House; the Willey Slide; the upper and lower Falls of the Ammonoosuck; the Basin, and the thousands of beauties and wonders we saw.

Mr. Kilburn has made the most prominent points familiar to many, by aid of his camera, and has a most charming series of views. Our only regret, concerning our trip is, that the camera was not with us; but we "picked out" many good subjects, some of which he has since secured. He is just the man for that sort of work. Gifted by nature with an iron constitution and a strong frame, he can endure all sorts of hardness and rough weather; and it is no labor to him to climb the giddiest heights, carrying seventy to eighty pounds of traps on his back. When night comes, if he is in the mountains, his handy hatchet cuts him a few boughs for a bed, and there he sleeps as soundly as upon his own couch. If weak companions are with him, he shoulders their luggage, too, when they tire; and if deep fords are to cross, he carries them over, one by one, on his back, dry-shod. Through the driving snows and the beating storms, he has cheered more than one companion, until a place of refuge could be found. Long may he live to photograph his native hills, and delight us with the doings of his camera. He is an enthusiast. He loves his business, and his work is excellent.

The present example is not a fair one of his work, because it is not a very inviting subject; but it is a *new* and doubtless interesting one to our readers, and has never before appeared to the public in any shape.

While we write, this great mountain is clad in its winter garb, as a recent view, sent us by our friend, verifies.

STEPPING-STONES OVER ROUGH PLACES.

V.

BY GEO. H. FENNEMORE.

Pleasing Portraits.—A correspondent, writing to me, asks, "What kind of a studio is best suited for taking pleasing portraits; how should it be situated, etc.?"

Good photographs can be made by skilful hands in almost any studio; but to make "*pleasing portraits*," involves other considerations than those of mere style or form of glass-room, without which the most perfect glass-room is of little avail.

Let us first consider, then, what is best to be done in order to produce a pleasing portrait. No photographer needs to be told that *expression* constitutes the chief power and beauty of the human face; and it is equally certain that expression is the result of thought and feeling, either occasional or habitual; therefore the habitual character or mood of a person will determine their average expression, and upon the face will be stamped the soul's predominant workings for a lengthened period. We also see mirrored there, with greater or less vividness, the varying emotions or passions of the moment. Such as love or hate, joy or grief. Especially if they are recent and intense. And these may for a time obliterate the general or habitual expression of the face. So, too, the ordinary expression of the face may be heightened and intensified by some mental excitement, which calls into action those attributes which have done most to give the face its distinctive cast.

The above remarks, then, lead us to inquire, what it is the photographer aims to get while exercising his art? Is it merely to produce an accurate outline of the subject before him?

This, indeed, seems to be the aim of many; but it should not be so. It is true that these things are necessary to a perfect portrait, but they are insufficient, and in many cases next to worthless, if the one great thing, *expression*, is wanting; that indefinable something which reveals to us the soul within, and stamps man with that individuality which distinguishes him from all others. If we cannot secure this, we lack one of the main attributes of the true artist, and the result will be simply a picture, but seldom if ever a *pleasing portrait.*

The photographer, in his endeavor to get a truthful picture, always encounters one great difficulty. The immovable and very often constrained position of the sitter, has a tendency to render the expression of the face dull and unnatural, and seldom having that genial expression of which the face is susceptible. It is of great importance then that, at the time of sitting, some means should be adopted (either by conversation or otherwise) to bring into the sitter's face the noblest and best expression of which it is capable. This is best done by acting on the mind of the sitter, by entering into conversation of a genial and refined nature, at the same time that you are giving an easy and graceful pose to the figure. Make him talk as much as possible on pleasant subjects, in order to watch the play of expression on the countenance. Avoid handling the subject as much as possible, and make the head-rest as little obnoxious as possible. This should be done quietly and quickly, without allowing the conversation to lag. Let the object you wish him to look at, be some distance off, and let it be something that will call forth admiration.

These little attentions, coupled with the feeling that you show a real desire to succeed, will naturally give a pleasant cast to the countenance. This once obtained, expose your plate, and the chances are that you have succeeded in pleasing yourself as well as your subject, by producing a pleasing portrait.

(To be continued.)

PHOTOGRAPHY v. PHOTOGRAPHY.

A VERY curious discussion—it may be a dispute—has arisen lately between Professor C. Piazzi Smyth, Edinburgh, Astronomer Royal, of Scotland, and Col. Sir Henry James, Director General of the Ordnance Survey.

Col. James having sent, this year, a party of officers and men of the Ordnance Survey of Great Britain, to measure and photograph the Great Pyramid, has recently published a pamphlet giving a totally opposite account of the present nature and former condition of the important fiducial *sockets* of the Great Pyramid, to what Prof. Smyth gave two years ago in his valuable work, "Life and Work at the Great Pyramid," as their state in 1865.

In our volume for 1867, we reviewed a series of Prof. Smyth's photographs, sent us, and also his book. He is a man of science; an industrious and keen observer, and a practical photographer.

Col. James speaks only from what he is told by others, without ever having seen the Pyramid. He produces a photozincograph of what he says is one of the sockets of the Pyramid, which shows a miserable and hardly identifiable scratching on the ground; and his letter-press declares that, in 1865 and before, each and all of the sockets were "only covered with a little *sand*, easily removable by the hand." Whereupon Prof. Smyth, as he writes us in a private letter on the subject, undertakes to show, by magnifying some of his plates taken in 1865, and which are only one inch square, *first*, that Sir Henry James vilifies the ancient builders, for the sockets which they cut in the living rock are very grand, and admirable pieces of mason work; and, *second*, that he libels the modern excavators of 1865, for what they had to cut through, was not "*sand*" at all, but a breccia of limestone rubbish, compact and tough, requiring a pickaxe to break through it; and both such a depth of it, and over so many square yards, that, as to the Colonel removing it all with his hands, it would take him all the rest of his life to do half of it, and would reduce him to something like the degrading picture offered by Nebuchadnezzar, when he was driven forth from among men, and his dwelling was with the beasts of the field, and he did eat grass as oxen, and was wet with dew of heaven. A very unpleasant class of beasts, too, are those of the *Pyramid* field: owls, bats, and infernally black-faced hyenas, like the dragons and satyrs that were said to haunt the ruins of Babylon.

To prove, further, his correctness, out of the one-fourth part of one of his little negatives, which is all that represents the socket and its excavation, Prof. Smyth magnifies an 8 x 10 glass picture, to prove what he knows, *what he has seen, and what he himself photographed.*

The question must then be between the photograph, full of detail, from Professor Smyth's negative, and the miserable photozincograph from a miserably-taken negative, by Sir Henry James's men, while he luxuriated in his easy chair at home. We have no doubt as to who is right in this matter. Prof. Smyth is too close an observer, to make mistakes; and, moreover, he spent a long time at the Pyramid, to decide many points of discussion concerning it. While, on the other hand, the men sent by Colonel James, were, probably, a lot of inexperienced officers, such as were sent last year by the government, to Arabia, to photograph the eclipse, and came back with—nothing. It is very doubtful if they knew where to look for the sockets.

The most curious thing about it is, that a man in the position occupied by Col. James, would make such assertions against those of one so talented as Prof. Smyth, without first satisfying himself that he was entirely correct.

We have heard it said that Mark Twain can describe places and things that he has not seen, better than those that he has seen; but in trying to accomplish such a feat, Col. James has most signally failed. Photography is against him. He makes many other curious and serious blunders in his report, to which Prof. Smith replied at some length, in the *Daily Review*, of September 29th, and of which Prof. Smyth has kindly sent us a copy, but our space, we regret, will not allow us to insert it.

"WHAT'S IN A NAME?"

BY DAVID DUNCAN.

Among the many contributors to photographic literature, there are gentlemen, I am proud to say, who possess great scientific attainments, and withal a profound knowledge of chemistry. In their future contributions, it is probable they may express their ideas, expound formulæ, etc., in the language of the new chemical nomenclature and notation. At first sight, to the ordinary photographic reader, it, perchance, may be perplexing, as the modern system of chemical nomenclature differs widely from the old.

Knowing that the majority of photographers have not time, nor perhaps opportunity of getting acquainted with the change which has taken place, excepting through their Journal, I take pleasure in explaining, briefly, the new names which may be applied, by contributors, to some of the chemicals used in photography.

I put Juliet's question, "What's in a name?" and reply, everything, in a photographic point of view. It would be inconvenient for a photographer, in a country place, to lose time in trying to procure "sodium anhydroborate," when borax, which he has in stock, is the same thing. My labors, therefore, in writing this, may not be in vain.

There is no change in the names of every chemical used in our art. I only give those which I remember, but which may be important. Further and more complete information can, of course, be obtained from modern works on chemistry.

The following list might be copied and hung in the dark-room for reference.

OLD.	MODERN.
Bisulphate of ammonia.	Acid ammonium sulphite.
Bicarbonate of potash.	Acid potassium carbonate.
Bisulphate of potash.	Acid potassium sulphate.
Bicarbonate of soda.	Acid sodium carbonate.
Bisulphite of soda.	Acid sodium sulphite.
Alum.	Ammonio-aluminic sulph.
Ammonio-nitrate of silver.	Ammoniated silver nitrate.
Ammonio-sulphate of iron.	Ammonio-ferrous sulphate
Carbonate of ammonia.	Ammonium carbonate.
Sal ammoniac.	Ammonium chloride.
Liquor ammonia.	Ammonium hydrate.
Nitrate of ammonia.	Ammonium nitrate.
Hydrosulphate of ammonia.	Ammonium sulphydrate.
Sulphide of ammonia.	Ammonium sulphide.
Chloride of barium.	Barium chloride.
Nitrate of baryta.	Barium nitrate.
Biborate of soda. Borax.	Sodium anhydroborate.
Boracic acid.	Boric acid.
Chloride of calcium.	Calcium chloride.
Bisulphide of carbon.	Carbon disulphide.
Chloride of lime. Bleaching powder.	Chlorinated lime.
Sulphate of copper.	Copper sulphate.
Sesquichloride of iron.	Ferric chloride.
Protosulphate of iron.	Ferrous sulphate.
Chloride of gold.	Gold chloride.
Muriatic acid. Spirit of salts.	Hydrochloric acid.
Acetate of lead.	Lead acetate.
Litharge. Protoxide of lead.	Lead monoxide.
Magnesia.	Magnesium oxide.
Sulphate of magnesia.	Magnesium sulphate.
Black oxide of manganese.	Manganese dioxide.
Bichloride of mercury. Corrosive sublimate.	Mercuric chloride.
Bichloride of platinum.	Platinic chloride.
Acetate of potash.	Potassium acetate.
Bichromate of potash.	" anhydrochrom.
Carbonate of potash.	" carbonate.
Chlorate of potash.	" chlorate.
Chromate of potash.	" chromate.
Cyanide of potassium.	" cyanide.
Red prussiate of potash.	" ferricyanide.
Yellow prussiate of potash.	" ferrocyanide.
Caustic potash.	" hydrate.
Iodide of potassium.	" iodide.
Nitrate of potash.	" nitrate.
Nitrite of potash.	" nitrite.
Permanganate of potash.	" permanganate.
Sulphate of potash.	" sulphate.
Sulphocyanide of potass'm.	" sulphocyanate.
Nitrate of silver.	Silver nitrate.
Acetate of soda.	Sodium acetate.

OLD.	MODERN.
Carbonate of soda.	Sodium carbonate.
Chloride of soda.	“ chloride.
Caustic soda.	“ hydrate.
Hyposulphite of soda.	“ hyposulphite.
Nitrate of soda.	“ nitrate.
Phosphate of soda.	Sodium phosphate. Disodic orthophosphate.
Protochloride of tin.	Stannous chloride.
Chloride of strontia.	Strontium chloride.
Oil of vitriol.	Sulphuric acid.
Chloride of zinc.	Zinc chloride.

WORK FOR SPARE HOURS.

RETOUCHING THE NEGATIVE AND PAINTING THE POSITIVE.

THE great motive power that impels the photographer, if there is anything in him to impel, is *bread and butter*, of course. The true way to *secure enough* of that essential power, is to make good work. We are often amused at visitors who call upon us. When showing them a fine example, by Salomon, or Milster, or Notman, or Kurtz, or Lœscher & Petsch, or some other skilled artist, "Look at the delicate half-tones, the roundness, the vigor, and yet how soft," say we. They "look" and then answer, with an injured tone: "Oh *yes!* but *then he retouches his negatives*," as if that was enough to brand the producer of such gems as a "dodger"—a *fraud* upon the public. But no! no! Retouch *your* negatives like that, and *then* see what you will say. The day has gone by, when it was considered a crime to improve the qualities of a negative or a print by a few touches, and those who do it are no longer considered with odium, but, on the contrary, are praised, and their skill coveted. The retouching of the negative is becoming very popular; so much so, that Mr. Ayres embodied an extended chapter on the subject, in the second edition of his valuable book, "How to Paint Photographs." Moreover, we have in preparation, for an early issue of our Journal, two prints of the same subject, which shall appear, side by side; one from a negative retouched, and the other from a negative not touched. Our readers will then have an opportunity of seeing what great changes may be wrought by a few touches of the pencil, and will, we think, look with charity upon the process. The retouching, when supplied with a proper frame, may be done by any careful hands, the chief point being to know *where* to retouch. Mr. Ayres's book should be carefully studied, and photographers might practise on negatives of little value, until we can illustrate, by the promised particulars, more fully what the advantages are. Such work can be done in hours that would probably be otherwise wasted. Particularly during the coming season, there are many days when it will be too dark and stormy to make negatives or print. Such days should not be lost, for they can be profitably employed, thanks to Mr. Ayres's instructions.

The coloring of the photograph is another occupation which will come in good to help make stormy days pay as well as the sunshine ones. First, practise on rough prints, then prepare a few specimens carefully for your walls, and we feel sure you can soon accumulate enough work to occupy all your spare time—work, too, that will remunerate you handsomely. Your first customer-picture will earn you enough to pay for your entire instructions. Such use of your spare time will elevate you, improve your work and your income too.

PHOTOGRAPHY FOR BEGINNERS.

No. VIII.

BY PROFESSOR JOHN TOWLER, M.D.

THE paper, as soon as sensitized, is hung up to dry gradually; it sometimes happens, however, that it is required sooner than it could be obtained by drying at the ordinary atmospheric temperature. In this case, the sheets having drained sufficiently, and the drops of nitrate of silver that have accumulated at the lowest corners, having been removed by a piece of blotting-paper, you hang the sensitized papers on a line or cord and place a small charcoal fire or a spirit-lamp at some distance below them. A current of heated air is thus made to ascend and circulate around the sheets, and this soon dries them. If the fire or lamp is placed too near, the paper dries too irregularly, and thus becomes very troublesome to work with when you come to the printing operation, because you cannot make it lie flat on the negative. Upon the whole, it is not advisable to dry by artificial heat, unless it be very moderate and unless circumstances require it; and when the paper has been so dried, it is well to place each sheet separately between the leaves of a large book, and submit them to pressure, which renders them flat and equalizes the degree of dryness in the tissue. If this precaution be not observed, and the paper be taken direct from above the lamp and placed on the negative, you will find, even when every precaution has been taken to make the paper lie flat on the surface of the glass, that in a very short time the paper is full of corrugations or wrinkles produced by the imbibition of moisture from the cloth of the pressure-frame. Hence the necessity of placing the sheets between the leaves of a large book; and this plan is also to be recommended when the paper is dried at a natural temperature.

But now it may be well to say a word about fuming, which many photographers resort to. As regards myself, I have abandoned it this long time; for the extra labor did not in any way seem to be compensated by any extra advantage.

FUMING OF THE SENSITIZED SHEETS.

A large cupboard or dry-goods box is suitable for the fuming operation. The perfectly dry sensitized sheets are pinned by the corners on the sides, top and door of the cupboard or box. A saucer, or still better, a porcelain evaporating dish is placed on the bottom of the box or on a retort-ring, which allows a small lamp to be placed beneath it; this is necessary when the temperature is low. Ammonia is then placed in the dish, either diluted or concentrated, according to circumstances. If concentrated ammonia be used it will scarcely be necessary to apply a lamp beneath the dish, since the vapors pass off with rapidity without raising the temperature, excepting in winter. When all is adjusted, the door of the cupboard or box is closed; and in this way the sensitized surface of the paper is submitted for a quarter of an hour or thereabouts, to the fumes of ammonia, which is supposed by its action to render the film still more sensitive than it was before fuming. After this operation the door of the cupboard is opened, the ammonia is removed, and a free circulation of common air is admitted. The paper is then ready for use. The color of the print that has been fumed is more of a blue, whilst the unfumed paper gives a print of a reddish tone; but the finished prints in either case cannot be distinguished from each other.

EXPOSURE OF A PRINT.

No exact rule can be given as to length of time it may be necessary to expose a print; for negatives are so variably constituted. A negative endowed with harsh contrasts may be printed much deeper than one of a more delicate structure and full of middle tone; again, a negative may be possessed of all the gradations of light, middle tone and shade in different degrees of density; in one extreme the shades are all exceedingly dense, in which case a correspondingly long exposure is required in order to get detail in the middle tones; whereas in the other extreme, where there is a lack of density in the shades, a very short exposure alone can be tolerated, otherwise the lights will all be obliterated. Both these extremes are faulty, that is, with such negatives it is impossible to obtain prints in full vigor and yet endowed with light, middle tone and shade in natural gradation. In the first extreme the prints are pure black and white pictures, horridly harsh and unartistic; in the second extreme, there are no white spaces and no vigor anywhere; the picture is flat, tame, and indistinct; it is a very bad picture. How, then, shall we be able to know beforehand whether the negative will make a good print or not?

By the *depth of intensity* of the deepest shades and the amount of detail everywhere.

The following criterion will assist you in making the proper designation as to the first property: Hold the negative up in front of a window looking to the north, for instance, about three or four feet from the window and close to the eye; if you cannot distinguish the bars of the window frame, the negative is too intense; such a negative will give you no detail in the parts contiguous to the deepest shades; the print will be a black and white picture without detail.

But if you can just discriminate the bars of the sash through the densest shades as you look through the negative and move it up and down, the depth of the deepest intensity is about right.

Now as to the amount of detail, this does not depend upon the developing of the negative or of intensifying, it depends upon the illumination of the object at the time when the negative was taken, as well as upon the nature and color of the object itself. For instance, suppose in the foreground you have several leaves of a plant well defined as regards outline, but devoid of all shading and all the fine marks and lines that constitute the network on its surface; such a negative is defective: there is a want of detail, which, in the present case, would require a bright illumination and a long exposure; but a long exposure might destroy the detail in other parts, as for instance, in a white building that stands behind a number of trees. Such cases as these are numerous enough in photography, where one part must be sacrificed for the sake of the other; and in such cases, as long as the shades are not too dense, you can obtain a tolerably good print, although by no means a perfect one.

Having found a negative, therefore, of the proper density, you may expose the print until the sky or the white background is slightly changed from white, or until the deepest shades begin to be bronzed; it is then time to take the print from the pressure-frame and to store it away in a drawer or box to which light cannot gain access.

TONING OF PRINTS.

As soon as you have printed all the prints you require, the time has arrived to commence the next operations, namely, to tone them. In the first place, the prints must previously be well washed, in order to remove all free nitrate of silver that has remained in the tissue of the paper since it was sensitized. This silver must be got rid of. Let the prints, therefore, be immersed in a good supply of rain-water and moved about in it for a quarter of an hour, then pour off the water into the tank used to receive your silver residues. A fresh supply of water is now poured upon the prints, which are to be washed as before. The operation may be repeated for the third time with advantage. Bear in mind, that the prints are sensitive to light, and that, consequently, this operation of washing must take place in the yellow- or dark-room. The prints are now ready for toning.

TONING SOLUTION.

Make, in the first place, a stock solution of chloride of gold, or of the double chloride of gold and sodium.

Chloride of Gold, . .	15 grains.
Rain-water (or distilled), .	2 ounces.

For present use, the quantity of solution must be regulated by the quantity of prints to be toned. The smaller the quantity of solution, the better, as long as the prints are thoroughly immersed in it. Take then, for a given case:

Rain-water, . . .	4 ounces.
Stock Solution of Gold, .	1 drachm.
Unslacked Lime in Powder,	4 grains.

Shake the mixture well and filter. Test the solution with blue litmus paper; if this is turned red, add more lime and filter again. Such a solution ought to be prepared a few hours before it is needed, as it improves by keeping; it may, however, be used right away.

Each print is, whilst still wet, immersed in the toning solution; and you must take especial care to remove all air-bubbles from the surface of the print before you put another print into the fluid. When all the prints are in the solution, you must keep them in continual motion, by turning them over and changing places with one another, the object of which is to avoid bubbles, which produce unequal patches of toning.

Now comes the question: What sort of a tone do you like or want? Without any gold, the finished prints would be reddish; with a little gold, less reddish, then purple, sepia, black, and all the intermediate tones.

The tones of the finished prints are much darker than those of the prints when they leave the toning solution. You must bear this in mind, and always remove the prints from the toning solution in time. A very pretty tone is produced by withdrawing the prints from the solution as soon as the first change is distinctly apparent; but, some people prefer much darker tones, in which case you must leave the prints in the solution much longer.

A few experiments with prints from the same negative will repay you for the trouble: take one print without any toning, a second is removed from the gold solution as soon as the first slight change is visible, a third when the reddish hue has disappeared, and so on to the end.

Vigorous prints tone easily.

Prints that have been long in printing, tone easily.

Less vigorous prints are slow in toning.

Very thin prints can scarcely be toned, or are almost bleached in the toning.

Whilst busy with the toning operation, put your hands into a solution of hyposulphite of soda, and then take a print from the water where it has been washed, with your fingers unwashed, and immerse the print in the gold solution. You perceive, where you have touched the print with your fingers, there is a dirty mark which you cannot obliterate afterwards. Therefore, keep your hands entirely away from hyposulphite of soda during the toning operation, or, if you must put your hands into the fixing solution whilst thus engaged, wash them well with soap and water before you touch the prints again.

The prints, when removed from the toning solution, are immersed in clean rain-water or spring-water, until you are ready to commence with the next step.

FIXING OF PRINTS.

Both the toning and fixing operations are performed in the yellow-room.

FIXING SOLUTION.

Hyposulphite of Soda, .	2 ounces.
Rain-water, . . .	8 "

Immerse the prints in this solution, and see that there are no air-bubbles on the surface of the pictures. Keep them in motion. In about ten minutes or a quarter of an hour, the prints are fixed, and may now be taken into the light of day and washed. For this purpose place them in a dish, and pour water upon them. The water is then immediately thrown away. Turn the prints over, and again pour water on them, and again pour it off. Repeat this operation several times, and finally leave the prints to soak in fresh water for an hour, and then change again, and so on for six or eight hours. Where you have a running stream of water, all that you have to do is to place them in the stream for a number of hours.

One important point to be observed is, to remove the excess of hyposulphite from the prints right away, by changing the water rapidly several times at the beginning; for, if you leave your prints, as they come from the fixing solution, in a small dish of water to soak, the hyposulphite is not removed from the paper, but remains in it or on it, and thus tends to bleach the print.

The hyposulphite must be entirely removed by washing, if the prints are to be permanent.

Motion during the washing is very essential even during the soaking period.

Finally, take out the prints and hang them up to dry.

On the Proportion of Actinic Light stopped by a Solution of Bisulphate of Quinine, and on the Value of a Solution of Bichromate of Potash as an Adiactinic Medium.

BY JOHN M. BLAKE.

THERE has been some discussion in the columns of the *Photographic News*, in regard to the efficiency of a solution of sulphate of quinine confined between glass plates, for arresting actinic rays; the proposition having been made to substitute such an arrangement for the yellow glass in dark-rooms.

In the *News*, for September 10th, is an abstract from a paper on the chemical reaction of light on certain vapors, read by Prof. Morren before the British Association, in which the following remarks occur: "And here I wish to notice, in passing, an interesting fact, important especially to photographers. I mean the power of intercepting only the chemical rays of solar light, without stopping the luminous rays, possessed by a solution of bisulphate of quinine well filtered, and confined by means of gutta-percha between two glass plates. This screen, of five millimeters in thickness, is of an extreme transparency to light, but the chemical rays are intercepted. It might be advantageously used instead of yellow glass, which, in photographic operations, casts on all objects such peculiar hues as require a special education of the eye, which has to judge of the reactions."

The editor, in the same number of the *News*, commends the experiment to his readers. In the next number is a communication from Mr. B. Ford, as follows: "Referring to your notice of Prof. Morren's experiments on light, I may briefly state that I have used a diaphragm or screen, such as you describe, for some years. I have tested various adiactinic solutions, but find that the yellow chromate of potash, or the bisulphate of quinine, answers the purpose better than any I have yet tried, from the great quantity of nonactinic light which they transmit. I use the solutions confined between plates of glass. I may also state, as a proof of their efficiency, that I have a cover for the lens, made with plate-glass, confining a stratum of either of the above solutions. I use this cover so that, in out-door practice, I can focus at once upon the sensitized plate in the camera. I have constructed a camera for field purposes, whereby, taking advantage of the properties of the above solutions contained between glass plates, I can sensitize and develop a plate in the open air with greater ease and certainty than by the ordinary method in the dark-room."

In the *News*, of October 1st, is a communication from Mr. John Spiller, F.C.S. (taken from the *Photographic Journal*). He remarks: "It is, however, somewhat remarkable to note the continual reiteration of this scientific error, which crops up periodically in the photographic journals," etc. He calls attention to the fact that, in 1854, Mr. Crookes exhibited photographs of the solar spectrum taken upon iodized and bromo-iodized plates, the light having passed through a *strong* solution of quinine contained in a glass cell measuring *one inch* across; and asserts that it is now imperative that further evidence should be collected before the statements of Prof. Morren can be received.

It would seem that this should have been sufficient to set the matter at rest, as far as the employment of quinine-screens for photographic dark-rooms is concerned, for Professor Morren's experience simply goes to show that those rays producing the peculiar reactions on the vapors experimented upon by him, were rendered inert by the solution of quinine.

Another photographic application of the optical properties of quinine, has been proposed. This will be understood from the following quotation from Hardwich's Photographic Chemistry:

> "Sir John Herschel proposed to render colored light more available in photography by separating the actinic rays of high refrangibility, and working only with those which correspond to the blue and green spaces in the spectrum. This may be done by placing in front of the camera a vertical glass trough, containing a solution of sulphate of quinine. Professor Stokes has shown that this liquid possesses curious properties. In transmitting rays of light, it *modifies* them so that they emerge *of lower refrangibility*, and incapable of producing the same actinic effect. Sulphate of quinine is, if we may use the expression, *opaque* to all actinic rays higher than the blue-colored space. The proposition of Sir John Herschel, above referred to, was, therefore, to employ a bath of sulphate of quinine, and having eliminated the actinic rays of high refrangibility, to work upon bromide of silver with those corresponding to the lower colored spaces. In this way he conceived that a more natural effect might be obtained."
>
> "If photographic compounds should be discovered of greater sensibility than any we at present possess, the use of the quinine bath will perhaps be adopted."

It will be noticed that the exact amount of retarding influence of a quinine bath on an ordinary exposure, in the camera or otherwise, has not been noted, and this seemed a matter of practical importance;

therefore I was induced to undertake a few experiments, the first object being to determine this point with sufficient accuracy for practical purposes.

A good commercial sample of sulphate of quinine was used, and it was found to dissolve completely in thirty parts of boiling water, and twenty-five parts would not dissolve it. The bisulphate was prepared from this, but the resulting concentrated solution was not entirely colorless, and it was allowed to deposit crystals. The crystals obtained were dissolved in water for use. A careful estimation of the solubility of this bisulphate was made. At the temperature of the room, between 60° and 70° F., it was soluble in 10.93 parts of water. The salt, as dried at 120°, being understood. The crystallized salt effloresced in dry air. The cold saturated solution of the sulphate, containing 1 part in 740 of water, gave some evidences of fluorescence when examined by passing into it sunlight concentrated by a lens. This I found to be a powerful means of making the peculiar action of quinine on light visible. The entering beam was illuminated for a depth of about three-fourths of an inch, and was of a *violet* color. The addition of a few drops of sulphuric acid to the solution at once greatly increased the fluorescence, the beam being illuminated for a distance of about five inches into the solution, and of a beautiful *blue* color. The saturated solution of the bisulphate being much more dense, the entering beam of highly concentrated sunlight appeared of an intense blue; but, strikingly so, only for a distance of one thirty-second of an inch, or less, from its point of entrance into the solution; showing that nearly the maximum effect had been produced on the beam by a much less depth of solution than three-sixteenths of an inch actually used in the experiments. This much to show that a good sample of quinine was used, for were there a possibility of a mistake in this direction, the results to be given might be called in question.

The interposition of a cell of saturated solution of bisulphate of quinine, three-sixteenths of an inch in thickness, made nearly three times the exposure to either diffused or direct sunlight necessary to produce the same amount of coloration in chloride of silver paper, as would be required if the cell contained simply water. The same was the case with chromatype paper In the experiments on sensitive collodion, stereo-plates were used; exposing one-half of the plate a certain time in the ordinary way, and the other half through a quinine cell of the thickness mentioned. A simply iodized collodion, a bromized, and an ordinary bromo-iodized collodion were tried, and in each case two and one-half times the exposure was required, where the quinine cell intervened, to render both halves of the plate of equal density.

It was undertaken to test the value of the quinine cell and a lengthened exposure for the better rendering of colors. The plates used to determine the retarding influence of the quinine solution had been exposed to the image of a variety of colored objects, such as would be liable to occur in actual practice,—green leaves of various shades, and colored worsteds and papers. A careful examination of the negatives produced failed to detect an advantage in rendering colors by the use of the quinine cell. The bromized collodion gave vastly better results than the iodized, both as regards color and shades; but simply for the reason that has been given by others, that the bromide of silver was more sensitive to the darker shades of white light than the iodide.

It seemed a point of interest to ascertain if the blue light, diffused from the beam of sunlight entering the solution, could be photographed. The action of a fluorescent medium being considered as effecting a reduction in the refrangibility of certain invisible actinic rays, and the light dispersed from the path of entering rays to be the same light thus reduced. A square inkstand, having polished, plane sides, was filled with a solution of bisulphate of quinine, containing one part in seven hundred and forty of water. Made thus dilute that the entering rays might be colored to some depth into the solution. This was placed before a camera, sunlight was passed through one side from a condensing lens, and the camera was focused on the beam through the adjoining side. All parts of the glass vessel not required to be transparent, were covered with black varnish, to absorb stray light. The resulting negative showed the light from the entering cone of rays, to have considerable actinic power. The sunlight, at the point of entrance, was concentrated sixteen times. Here sufficient light was dispersed to produce a deeper impression on the plate than white paper shielded from the direct rays of the sun, but exposed in a well-lighted room. Notwithstanding the rapidly-increasing concentration, as the light came to a focus, one and one-half inches back in the solution, the amount of impression on the plate was nearly uniform to the apex of the cone, showing that the diminution of the dispersed light kept pace with the concentration of the beam. Thus we have approximate data for determining the law of decrease in the dispersed light, with the depth of solution. In this case there was nearly a balance, which would not have occurred, other conditions being equal, had the solution been more concentrated. The actinic action of the dispersed light could not have come from floating, solid particles, for in this case the light must have increased toward the apex of the cone. Again, the same exposure was tried with the cell of dense solution of quinine interposed between the condenser and vessel. The impression now produced on the plate, was faint, and only that produced by one-eighth the exposure, as at first; proved by another trial. The blue light of the sky, supposed by Professor Tyndall to be caused by the action of light, as upon the vapors examined by him, the ordinary practice of photography shows to be quite actinic.

Since writing the above, the *Photographic News* for October 22d, has been received. Mr. Spiller has found, by experiment with solutions of quinine of various depths and degrees of concentration, that it would be utterly impossible to substitute this mode of illumination for that by yellow glass. It is understood now that Mr. Ford used another salt in addition to bisulphate of quinine.

Before concluding, I will state that careful experiments have entirely convinced me of the *great* value of a solution of bichromate of potash as an adiactinic medium. A thickness of three-sixteenths of an inch of a two-thirds saturated solution of bichromate of potash was compared with a deep yellow glass, the composition of which I have not yet determined. It was colored throughout, and a common variety. It was probably not equal to the best of non-actinic yellow glass. A sample of deep yellow paper, such as used for envelopes, was also tried. A collodion film was exposed under each for two and one-half minutes, three-quarters of an inch back of a circular aperture, one and one-half inches in diameter, in the side of a box, the full light from an overcast sky being admitted. The result was, no perceptible darkening under the bichromate cell, but a ruinous fogging under the paper, and twice the amount under the glass. Ten minutes exposure under the bichromate cell produced a perceptible fogging, judged to be one-fourth that produced under the yellow paper in one-fourth the time.

A comparison of the amounts of luminous rays transmitted by each, was made by the method of equalization of shadows, varying the apertures at the same distance from the body throwing the shadows. This showed the three media to stand as follows: light admitted by yellow paper, one; by the yellow glass, *ten;* by the bichromate solution, *thirty.* Indeed, the superiority of the bichromate of potash solution was strikingly manifested by the *ease* with which the film could be viewed under it during exposure, while it could be scarcely seen under the yellow glass in the brightest light.

Even should we substitute yellow paper for the bichromate solution, using thirty times the area of the former, for the purpose of lighting the whole interior of a room to an equal degree, we could not obtain, by any possibility, by nearing the window, to secure the highest degree of illumination, but one-thirtieth of the light we could obtain by a near approach to our bichromate screen.

Let us now compare the other advantages. The values of the three media to exclude actinic rays, stand approximately as follows: yellow paper, *two;* yellow glass, one;

bichromate solution, *thirty-two.* The combined advantages of the several media then stand in this proportion: yellow paper, one; yellow glass, five; bichromate of potash solution, *four hundred and eighty.*

I have since tried chromate of potash, which was suggested by Mr. Ford, and find that its solution, made of the same tint as the saturated bichromate diluted 64 times, was about three times as effective in stopping chemical rays; but nearly 50 times as much weight of the light-colored chromate was required; and, therefore, it is probable that the bichromate will be most generally used.

The distribution of the absorption bands in the transmitted spectra of different solids and liquids, make it seem possible that, by a combination of two media, each of which, separately, may be insufficient, we may hope to arrive at a yet more perfect exclusion of actinic light, with increased power of transmission of the visual rays.

It now remains for some one to contrive a cell of glass that will safely hold a solution of this poisonous substance. The term dark-room can then be dropped from the photographic vocabulary. The principal danger would arise from leakage; cemented cells are not often reliable. Common thin and *light-colored* glass-bottles may be made serviceable until something better can be obtained, diluting the bichromate solution as its depth requires, so as to admit as much light as consistent with safety.

Experimental cells can be made by dipping a piece of rubber-tube into rubber solution, and arranging it between two plates of glass, and then compressing the sides of the cell by clips.

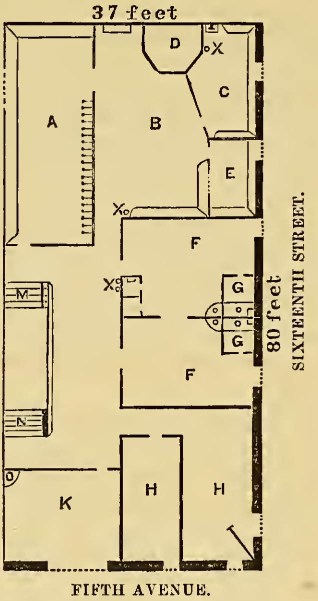
NEW AMERICAN STUDIOS.

We continue our series of articles on *New American Studios* with a description of Messrs. J. Gurney & Son's new establishment, corner Fifth Avenue and Sixteenth Streets, New York, which they first occupied in May last. In its extent and general arrangement it is probably the best adapted to the wants of the profession of any in the country, and it is excellently managed and worked by excellent hands. Our first visit to it, soon after it was opened, convinced us that every attention had been paid, in its erection, to the wants and comfort of the patron, operator, artist, printer, and finisher, and that the best of work would be produced there.

A later visit enabled us to confirm our first ideas emphatically, and to make such notes as we propose to give below for the benefit of those who contemplate the erection of new rooms, and for those who would learn how to conduct their old ones on a model plan.

The entrance, from Fifth Avenue, is wide and spacious; and, if there was an entire absence of such an intimation at the door, the *appearance* of the entrance seems to say, "*This is an Art Gallery.*" We ascend the stairs and enter the reception-room, thirty-seven feet by forty feet, and eighteen feet high, and lighted by five large windows. The walls, hung with elegant maroon draperies, are covered with specimens of all classes of the finest work; here, also, is the counter for the issuing of tickets, selling pictures of celebrities, delivering parcels, and the transaction of general preliminary business. At one corner of the room is draped closely a cosy little room, lit from the top, used for the exhibition of paintings and chromos, publishing the latter being a branch of Messrs. Gurney & Son's business. At present it is occupied by a bewitching painting of the bewitching Esmeralda and her pet goat, Djali: a scene from Victor Hugo's celebrated romance of the Hunchback, which will soon be "chromotized." The whole room, were it not for the buzzing and bartering, over the counter in the corner, between the busy clerks and anxious patrons, would seem more like the private parlor of an art connoisseur than a photographic art gallery. It is charming and cheering as a monument to our profession.

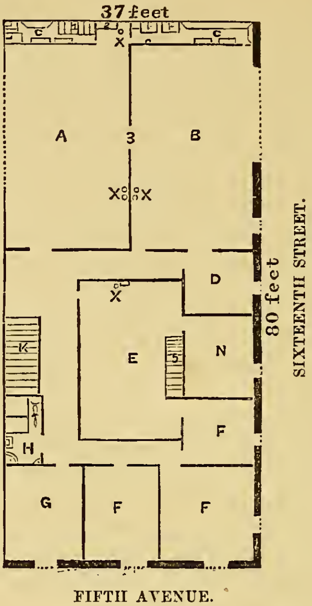
We ascend to the next floor, and of this we present a diagram, which will give a better idea of it than we can give with the pen, except to say, that *convenience,* comfort, and plenty of light seem to have been studied throughout.



A, Stock and frame room.
B, Porter's work room.
C, Glass cleaning room.
D, Elevator.
E, J. Gurney's sanctum.
F,F, Toilet parlors (ladies' and gents').
G,G, Commodes.
H,H, Artists' studios.
K, J. Gurney's library.
M, Stairs leading from gallery.
N, Stairs leading from second floor.

In the toilet rooms are convenient closets for the reception of the apparel of the patrons, while sitting. On the tables are the daily newspapers, *The Philadelphia Photographer*, and other magazines and books, etc., etc. The stock and frame room is where frames, etc., are selected and sold; and from the porter's room to the cellar, runs an elevator (D), by means of which goods are brought up from the street. In Mr. J. Gurney's "sanctum" (E), ivorytypes, miniatures, etc., etc., are fitted and framed. There are three artists at work in their studios, on this floor. Mr. Gurney's "library" is a little *bijou* of a parlor library—cosy, light, and comfortable.

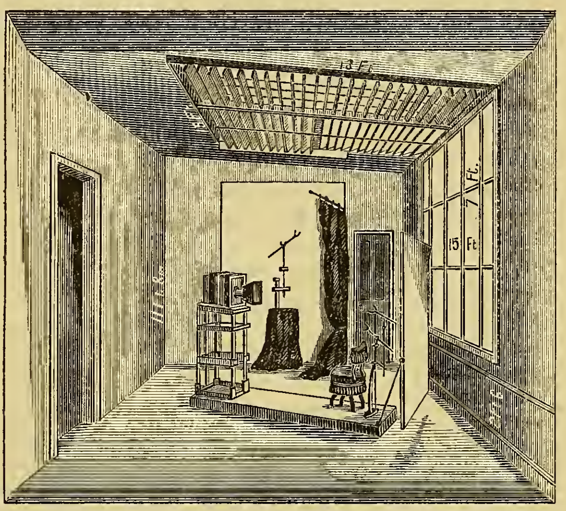
By the stairway N, we ascend to the next floor, of which we also present a diagram:



A, South skylight, 30 x 18 feet.
B, North skylight, 30 x 18 feet.
C, C, Dark-rooms, 13 x 6 and 18 x 6 feet.
D, Retiring room, 10 x 10 feet.
E, Cutting, mounting and finishing room, 24 x 15 feet. Directly over this is the printing room, with negatives, covering a space of about 24 x 26 feet.
F, F, F, Artists' studios.
G, Chemical laboratory, 12 x 14 feet.
H, Room containing commode, wash basin, sink, and pump.
K, Stairway from second floor.
N, Silvering and fuming room.
No. 1. Stairway from dark-room to roof.
No. 2. Dumb-waiter, going through the entire building to cellar.
No. 3. Door between skylights, 10 feet high. (See cut, opposite page.)
X. Speaking-tubes, leading to the office.
No. 5. Stairway, leading from finishing to printing room.

Here, it will be seen, are additional rooms, to meet all the requirements of the different branches of the business, and of the force required to conduct the same.

It will be seen that there are two skylights, side by side, one inclining to the north and the other to the south, each having a side light. Of one of these (the north) we give a drawing below. We enter the south light by the stairs from the floor below. It is eighteen feet wide by thirty feet deep, and both side and top light are fitted with ribbed glass. The top light is fifteen feet by thirteen feet, and the side light fifteen feet wide by seven feet high, beginning two and a half feet from the floor. The highest point in the room is eleven feet eight inches. So it will be seen that the inclination of the top is from the latter to nine and a half feet, which is generally considered rather high for a quick-working light. In this room the rustic effects are produced. On a platform nine feet by eight feet, is the artificial shrubbery, foliage, etc., of a dark-gray tint; the headrest, etc. This platform is on castors, so it may be moved around at will, to suit the light. Then there is an abundance of the best lenses, double swing-back boxes, rustic fences, chairs, arbors, and other paraphernalia to make *pictures*.


13 Ft.
7 Ft.
15 Ft.

Through a door, ten feet high—made so high that the backgrounds may be shifted through it—we enter the north light, which is all one could desire for good effects. The construction is exactly the same as we have described the south light to be, but its accoutrements are different. The light is controlled by spring-roller shades, inside. The most noticeable feature in this room is a movable platform, eleven by fourteen feet in size, and twelve inches high (see the drawing), to which one of Wilson's head-rests is fastened permanently; and to one end a background, six feet by five feet. At the other end is a camera stand (also made fast) and box. The box is adapted to making 4-4, imperial or cabinet, and card sizes, by substituting different sized tubes. The sitter is posed, and with great facility moved about under the light, until the best arrangement is secured. This can be done after the pose and focus are adjusted, too, and several effects of light may be tried, to choose from before making the exposure, or several effects got on the same plate. This is an admirable plan, and its advantages will be readily seen. It is the arrangement of Mr. F. E. Pearsall, who presides over this department with great skill and taste, supported in the dark-room by Mr. James L. Forbes. They are both young men of talent and ability, and their results are not excelled generally.

The retiring room is devoted to the use of visitors, while waiting their sitting and the result of their engagement, for they are never allowed to depart until satisfactory negatives are secured of them.

In the artists' rooms are three artists, for pastel, india-ink, and crayon work.

In the chemical room, the baths, collodion, etc., are prepared; baths boiled, etc.

Above, on the roof or top of the house, is the printing room, twenty-six feet by twenty-four feet, where five printers are constantly engaged.

The dark-rooms are cleanly and light, and have all the modern conveniences.

The best of everything is furnished to the employés, in instruments, apparatus, and materials, and as one of the operators proudly whispered to us, "The establishment is conducted by gentlemen with ability to direct, and character to harmonize every feature of the business, with a liberal appreciation of what each employé is worth, and give sufficient encouragement to all to cause him or her *to do their best.*" Their large business, continually on the increase, shows the wisdom of their policy.

THE CAMERA AMONG THE ICEBERGS.

HAVING just returned from a photographic trip among the icebergs, probably a few notes of it may interest your readers, and I jot them down.

The expedition was arranged by Mr. Wm. Bradford, the artist, accompanied by Dr. I. I. Hayes. It was my second trip to the regions of ice, so I knew somewhat beforehand of the hardships that had to be endured and the difficulties to be met with.

We left Boston, June 13th, and, arriving in New York, found one box of chemicals broken. We replaced them, and left for Halifax on the 15th. After a splendid passage we arrived there on the 17th. I found two boxes of glass broken (about one hundred sheets). I travelled all over Halifax to find some more glass, and, the only place I could find any, was at a hardware store, and that was of a very poor quality. I went to Mr. Chase, the photographer there, who was very accommodating, and assisted me in albumenizing my glass. Started the next day for St. John's, N. F., rather discouraged, but in hopes that a bad beginning would make good ending. We arrived at St. John's on the 21st. Nothing of importance occurred on the trip. We expected to find our steamer waiting there for us, and were much disappointed to find that she had gone to Sydney for coal, for we had to wait in that dead-and-alive place a week before she returned. To pass away the time, I made some twenty-five or thirty views of very beautiful scenery thereabouts.

The steamer arrived, and we went aboard the 28th. We set a carpenter to work building a dark-closet. It was fifteen feet long by six feet wide, with all the modern improvements. Our steamer (the *Panther*), was of three hundred and fifty tons burden, and was built very strong, on purpose for the ice, and was used for seal-fishing in the spring. The passengers and crew consisted of about thirty, the jolliest crowd that ever sailed for Greenland.

We left St. John's on the 3d of July, and were very glad to get off. The 4th was a very unpleasant day, foggy, and a very heavy sea running; all hands a little sea-sick; could eat but little breakfast, and did not feel like celebrating much; were not at all patriotic; the foreign water had a bad effect on us. Had bad weather for a week. On July 10th we made the Greenland coast, a place called Cape Desolation. We went ashore, and found the place was rightly named, for there was not a living being on it, nothing but rocks and icebergs to be seen. We intended to leave the next day, but it blew a gale and we had to lay there four or five days. All hands began to get homesick. We made a few pictures in the rain.

It cleared up on the 15th, and we sailed for Julianshaab, one of the largest places in South Greenland. The natives were all scared when we blew off steam, having never seen a steamer before. In the morning we went ashore and called on the Governor, who entertained us with a little whisky and cigars. In the afternoon we made some pictures of the Governor and his family, and some views of the Esquimaux huts. The next morning, about four o'clock, we went about twenty miles in a boat (which they call oomiack), paddled by six Esquimaux girls, who were all dressed in seal-skin suits. We took a picture of a cathedral, built nine hundred years ago by the Northmen, and did not get back until two o'clock the next morning, almost eaten up with flies and mosquitoes. We sailed again for a place called Kaksimuet, about a hundred miles farther north. In the evening we went on shore to the house of the Governor, who was a jolly old fellow with twenty-two children. He celebrated our arrival with a dance, and entertained us in good shape. The next day we sailed about sixty miles to the mouth of a glacier, where the icebergs break off, to take some views; worked all the forenoon; went on board to dinner; after dinner went back again, and had quite a narrow escape. Just as we were landing a large berg broke off, which sent the water up twenty feet all over us, and washed away collodion, developing glass, green baize, etc., and came very near taking us along with them. As good luck would have it, our camera and tent were up high and dry on the hill. We had to go on board and change our clothes, and the captain did not think it was safe to stop there any longer, so we got up anchor and steamed across the fiord two and a half miles, into a snug harbor. We had not been there more than half an hour when a large berg, two hundred feet high, broke off, which sent the water up forty feet, and, if we had been in the old place, the steamer would have gone up twenty feet on the rocks.

The glacier comes moving slowly down from the mountains, a great river of ice, thousands of feet deep, sometimes ten miles wide, to the fiord or bay at the foot of the mountain. The Alpine glaciers roll down into the warm valleys, and there, warmed by the sun, melt away like a piece of wax before a candle, and form brooks and rivers. But in Greenland, they cannot do that. It is too cold. Therefore, as the ice at the mouth of the glacier is pushed forward to the water's edge, it must break off in pieces and fall in, and such pieces are icebergs. When they break off, the glacier is said, by the natives, to "calve," or "an iceberg is born."

I can give you no idea of what a beautiful sight it is to see an iceberg break off, but we, who have seen it, will never forget it. Think of a mass of ice as big as the space of ground covered by the city of Boston, falling into the sea, and of the tremendous crash that occurs when it breaks away from its fellows, and they give it a parting salute as they groan and growl their last farewell. Now, see the waves leap up forty feet into the air, washing and lashing the glacier with spray, and sweeping everything away not strong enough to bear the shock; then watch the new-born berg as it rocks in the sea like a huge porpoise, up and down, dropping here and there portions of itself, which dive down and reappear in all directions, and you can imagine faintly what it is to see a glacier "calve an iceberg." It is a long time before the trouble of the waters ends, or before the new-born babe ceases to be rocked, and is still enough to have its picture made. It is a sight one never tires of.

The next day our party started to go on top of the glacier. It was very hard to get on to with our cooking untensils and photographic traps, it was so very steep. We travelled six miles on the top of it. The sight was grand from there. It was about two miles wide, and the length of it we could not tell, as it was hundreds of miles. The depth of it was from five hundred to eight hundred feet. We made a few pictures, eat our dinner up there, and then started back. We sailed the next day for Ivigtut, where the Kryolite mines are. Kryolite, as you know, is a mineral which is now largely used in the manufacture of *Hot Cast Porcelain Glass* for porcelain photographs and burnt-in-pictures, and which, I am told, will soon be introduced into the market. This is the only place in the world where the mineral is found, I believe. It imparts a whiteness and hardness to the glass unequalled by anything else, and can be had worked in sheets 60 inches square. We visited the mines, and intended to make some pictures, but it rained for two days, so we started for Upernavik (which means "Summer-place"), about eight hundred miles farther north, and the most northern settlement in Greenland where there are any white people. We steamed at half speed on account of the fog, as there was danger of running into the icebergs. We crossed the Arctic Circle, July 31st. We sailed along for a few days, and made instantaneous pictures of icebergs. August 3d we lowered a boat, went ashore, and shot about fifty ducks. The 4th, the sun shone forth for twenty-four hours for the first time. We stopped at a place called "Sanderson's Hope," and made a picture of a mountain 4500 feet high. We also collected a quantity of duck's eggs. We arrived at Upernavik on the 6th, a place of about two hundred and fifty inhabitants; went to a dance in the evening in a cooper's shop. The principal amusement there is dancing, and the principal smell is seal, which smell I smell yet. It was so cold your watch-chain would scorch your fingers. The next day we sailed for

Melville Bay. We stopped at a place called Tursuesak, and took a picture of a house, which is the farthest house north in the world. It was taken at twelve o'clock at night, and cloudy at that; arrived at Melville Bay about three o'clock in the morning of the 10th; went on deck and could see nothing but ice. Presently we discovered three bears; we steamed towards them through ice about two feet thick as far as we could, when they came towards us, and we shot them all. About seven o'clock we saw three more; all hands were anxious for a shot, but I told them to let me shoot first with the camera, which I did, and got two very good negatives of them from the topgallant forecastle. Walking on the ice presently, they came nearer, and all hands shot and killed them. We saw two more in the afternoon, but could not get them. We were packed in the ice all the next day, and could not get out. The ice made about two and a half inches at night. I made some pictures on the ice, but with poor success, owing to so much reflected light. I could not use my bath stronger than 18 grains. I made negatives, 14 x 18, with a view-tube, smallest opening, in two seconds. The next day the wind changed and broke the ice up. That night we moored alongside of an iceberg. It snowed all night. We worked all the next day making some views of icebergs, and, at night, took the midnight sun, three negatives, at ten, eleven, and twelve o'clock. The next day we got high and dry on the ice, and had to stay there two days. We began to think we should have to winter there, for all we could see, for miles and miles, was solid ice. This was in latitude 75°. We wanted to get through Melville Bay, and go farther north to Smith's Sound, but had to give it up.

August 19th, we started south. It snowed all night and froze hard, and we began to think it was time to be home. On our way back, we stopped at Upernavik for a week. I made some pictures of the natives and their huts, sledges, dogs, etc. When we went to get up anchor to leave, we found an iceberg grounded on it. It took about four hours to get clear of it. We sailed down the coast to Jacobshaven, where there is a very large glacier, but could not get to it, owing to there being so many icebergs in the fiord. We could not get within ten miles of it, even with a small boat, so I made some negatives of the icebergs there, and the next day we started for Disco, and made some views of some high cliffs, and of a whaler that was wrecked there. That finished my photographing in Greenland. I made between three and four hundred negatives.

September 16th was pleasant, and we worked all day packing and securing things for sea. All hands were in good spirits with the thoughts of going home. Went on shore in the evening to have the last dance and to say farewell.

September 17th we left for home. The Governor fired six cannons when we left. We arrived in Battle Harbor, on the Labrador coast, September 23d; found some newspapers there, a thing we had not seen for three months. We left the next day; arrived in St. John's September 26th, and, in a fortnight from that time, we were at home, safe and well.

My great trouble, while away, was reflected light. Everything worked flat, and I could not force the negatives up — the stronger the bath the flatter the negative.

My friend, Mr. Critcherson, of Worcester, was with me, and I suppose no one ever photographed farther north, or in colder weather than we did, but we were well repaid. You shall see prints from our best negatives soon.

Truly yours,
J. L. Dunmore,
Black's Studio, Boston.

November 10th, 1869.

PHOTOGRAPHIC ITEMS.

BY M. CAREY LEA.

Photography in Colors.—A very curious instance of two persons working in the same direction at the same time, unknown to each other, is that of M. Ducos du Hauron and M. Cros. The description by M. Cros of his process, appeared in the journal of the Abbé Moigno, *Les Mondes*, exactly two days after the date of the patent issued to M. Ducos de Hauron for his process.

But it would seem that, whilst the idea hit upon by both these gentlemen was extremely ingenious, it was scarcely of a sufficiently practical nature to be patented. Starting upon the basis that all colors may be produced by the admixture, in due proportion, of some two, or the whole three of these, viz., red, blue, and green (taking the red of an orange shade, so that it may, by dilution, give a yellow, and the blue of a blue-purple), they propose first to analyze the colors of all natural objects into these components, and then to recompose the original colors. Three views of any group of objects, are taken upon paper sensitized with bromide of silver; in one of the exposures a green glass is interposed, in another a red, in the other a purple; then a transparent pigment print is taken with each of these negatives by the carbon process. With the negative that was taken when a red glass was placed in front of the objective, a red pigment print is taken, with the blue, a blue, etc. Then, when these three transparent red blue and green prints are superposed, the combination produces a picture in all the natural colors.

Ingenious as this idea undoubtedly is, the difficulties in the way of execution are evidently extremely great, and these difficulties are not merely of manipulation, but there exist very great defects of principle.

Let us suppose, for example, that one of the negatives has been taken with the interposition of a colored glass, then it is evident that, to get the colors correctly represented, there is only one exact intensity proper for *each* of the other negatives. How is this to be hit? There is not the faintest indication to be had, nor is it possible that one should be found. The operator can only go on and hope for the best, and, if he does hit the correct exposure for the other two negatives, it will require a great deal of cleverness and a great deal of luck.

But, to obtain a full measure of the difficulties in the way, it must be observed that a very large proportion of the colored objects which present themselves, do not impress themselves photographically by means of their color, but, *by means of the white light which they also send back.* This fact is one that I have before strongly urged upon the notice of photographers, and it becomes, in the present case, of great importance. An object, for example, which should send to the camera red rays only, could certainly not be expected to impress itself upon a film of bromide of silver. It is the surface-light, which, in the case of almost (but not quite) all, substances, is white, which enables such substances to impress the sensitive silver film. This fact that colored substances send back also white light, is rendered conspicuously evident by observing the effect of colored light upon such substances.

For example, when the sun's rays fall directly upon the stained glass in a church-window, there are produced bright patches of colored light. These, in falling upon any colored surface, always produce an effect of color corresponding with the glass through which they pass. If, for example, a green patch of light falls upon a red surface, the effect is still green, not red. If the red surface did not reflect white surface-light, this result could not be produced, and the green light, falling upon the red surface would be altogether extinguished. The proof is even more striking when the colored light falls upon a black surface, as, for example, a black stuff. Here, also, a distinct coloration is always visible; it is faint, and naturally so, but the red beam is reflected back pale-red, and the green, pale green. And this can only be so by virtue of the white light which even a black object returns to us, a surface-light independent of its color. And it is exactly this white surface-light that enables these substances to impress themselves upon the photographic film.

It follows, inevitably, that the amount of impression which these non-actinic colors are capable of making, depends not upon their intensity of color, but upon the amount of white light which they reflect. And this is a serious, if not a fatal objection to the process of M. Ducos du Hauron. The relative intensity of the colors of objects in his pictures, obtained through the red and the green glasses, will not depend upon the relative intensity of the colors of the objects (as ought to be the case for a correct representation), but upon the quantity of white light which they respectively return.

Cleaning Copper.—When it is desired to obtain a clean, bright surface upon copper, it is customary, in all countries, to use nitric acid. In this way the desired surface is obtained with little trouble, and at once; there is, however, the objection that a considerable quantity of nitrous fumes are given off, and these red vapors are not only extremely disagreeable, but are very prejudicial to health.

It occurred to me lately, that the production of these vapors might be avoided by adding a little solution of bichromate of potash to the dilute nitric acid. Experiment proved that this answered perfectly. The copper surface was brought out clean and bright, without any disengagement of vapors.

On sanitary grounds, this method of operating deserves to become extensively known. In the manufacture of copper-ware, a great deal of this cleaning is done, and the frequent exposure to the fumes cannot but be very injurious to the workmen. In Naples there is a street of coppersmiths, and, in pleasant weather, they carry on their work in the street itself, which is filled with workpeople plying their trade. The cleaning, especially, is done out of doors, and I remember to have seen quantities of red fumes floating upon the air, and poisoning it with hyponitrous acid, which irritates the throat and chest extremely, and, when inhaled frequently, cannot but lead to serious injury to the lungs. With the aid of a little bichromate of potash all this might be avoided.

Carbonic Oxide.—Although this gas, when present in the atmosphere of rooms, generally proceeds from bad drafts, yet it has been recently shown, by the careful examinations of a commission of scientific men appointed for that purpose in Paris, that it may also be produced by hot surfaces of iron, such as the ironwork of stoves. At first, a certain amount of doubt attached to this assertion, but careful study seems to have placed the fact beyond doubt.

This matter is of importance to every one who sets any store by his health, but, to the photographer, it has a special interest. It is important to every one, because carbonic oxide is highly poisonous. It does not, when existing in the dilute state in which it is found in rooms, excite sudden or severe illness, but it slowly undermines the health, reducing the vitality of the brain, and generally diminishing the activity of the individual and his aptitude for his work.

But, to the photographer, it has a special importance. The sensitive film is easily acted upon by impurities in the atmosphere, especially if they be of a "reducing" nature, that is, if their tendency be to deoxidize. And this is the case with carbonic oxide.

The photographer should, therefore, at this season give especial attention to his means of heating. He should assure himself that the drafts of his fire-places or stoves act well in all weather; if they do not, the draft should be increased by a cap to the top of the chimney; if necessary, a metal cap with sections of cones to keep the eddies of wind from neighboring walls from driving down in boisterous weather. The action of the hot iron just spoken of, should be prevented, 1st, by avoiding all cast-iron stoves, and using wrought-iron ones only; and 2d, by seeing that the iron surface is well protected by a cylinder of firebrick. Even with a good cylinder, if the coal be piled on too high, and the fire be urged too much, the iron may be made red-hot; this should never be permitted.

Our senses seem to have been so constituted that, after giving us a distinct and well-marked warning, they then gradually accommodate themselves to whatever the individual insists on exposing them to. So that, when we first pass into a room of which the air is contaminated, we are made strongly conscious of the fact. If then we, nevertheless, choose to remain there, the sense of smell gradually accommodates itself to the atmosphere, and, the warning having been given and disregarded, we lose our consciousness of the contamination. Consequently, it by no means follows that the air of a room, in which we have remained some time, is pure, because we do not perceive it to be otherwise.

The photographer should, therefore, make it an invariable rule to judge of the purity of the atmosphere of his rooms by the impression made upon him on first entering from the fresh air out of doors. No inside atmosphere that will not bear this test, carefully and critically applied, is fit to live in, and I think I scarcely exaggerate in saying that, in fully one-half the whole number of cases this test cannot be supported.

Want of Definition.—This fault in paper positives is not at all an uncommon one, and often it is not in the least the negative that is to be blamed. The introduction of various sorts of new printing-frames has done no small mischief. These contrivances are often ingenious and convenient—they admit of rapid handling, and they especially are recommended for absence of danger of breaking negatives, and no wonder, for often they scarcely exert any pressure, none sufficient to insure perfect contact.

The old-fashioned bar-frame is far better than these self-styled "improvements." It distributes the pressure more equally over the plate, and, when properly handled, gives a clean, sharp print, free from the fuzziness and indistinct outline that mark prints made when the paper is not close up to the film. The curved springs under the bars rest at each end on the back, and exert a gentle but steady, elastic pressure. It is much better to avoid danger of breaking negatives by using proper packing, that is, thick elastic felt. That sold as piano-cloth is most excellent.

PRACTICAL NOTES ON PHOTOGRAPHIC SUBJECTS.

BY G. WHARTON SIMPSON, M.A., F.S.A.

A Simple and Efficient Printing Process on Canvas.—Some months ago I described a process introduced by Mr. Davies, of printing on almost any surface, no matter how unsuitable for photographic purposes; the sizing preparation consisting of a mixed solution of shellac and gelatine, effectually protecting the image formed on its surface from any injurious action of unsuitable surfaces. With certain modifications, not then stated, the process was found to be pre-eminently well suited for canvas-printing; and I promised, on a future occasion, to supply further details, when the best conditions were satisfactorily determined.

I have not had time to carry out some experiments which I at that time projected; but the subject has been ably worked out by other hands, and I am in a position to give you the results.

Mr. Peter Lothian, a photographer well versed in printing on canvas, has worked out Mr. Davies's process, for this especial branch, and with such satisfactory results, that he has resolved to use none other. He favored me with an opportunity, a few days ago, of inspecting prints on canvas, and on various kinds of paper, of very great excellence, indeed.

For printing on canvas, the chief modification of the formula consists in diluting the sizing solution considerably. The surface of the canvas, primed for painting, being non-absorbent, a much thinner coating of the lac and gelatine solution, is desirable, as a thick film might cause some eventual tendency to exfoliation. I gave Mr. Davies's original formula in these pages six months ago. To save readers the trouble of referring back, I now briefly repeat it. Take from four to six grains of gelatine, soak it in an ounce of water for an hour; then melt it gently over the fire, hot plate, or water bath, using a clean earthen pipkin. When fully dissolved, add to it, while yet warm, and stirring it gently during the mixing, from four to six drachms of a solution of white lac in methylated spirit, if for white or pale surfaces, but orange lac will do if the surface be of a darker color. This is made in the proportion of six ounces of spirit to one ounce of lac, and digesting it till fully dissolved. The mixture of the gelatine and gum lac, in spirits, produces a creamy-looking emulsion, to which is added four grains of chloride of sodium, or a like equivalent of chlorides of ammonium or barium, and when fully dissolved, filter through fine muslin into a clean pipkin, and it is ready for use.

Apply the solution warm, with a flat camel's-hair brush, crossing it till it lies evenly. When dry, it is ready for sensitizing, which may be either done by flotation on the ordinary printing-bath, or by brushing on the silver solution, containing forty grains of silver to the ounce of water.

This is the formula still employed for paper, with much success. I may remark, *en passant*, that for paper a fifty-grain ammonio-nitrate solution gives a rich velvety quality of picture, which I prefer to that obtained with the plain silver solution. When the ammonio-nitrate is used, a fine, rich, purple-brown tone is obtained, by fixing in hypo, one part in eight of water, without toning.

To return, however, to the canvas-printing. To render the lac and gelatine solution suitable for canvas, it is to be diluted with an equal bulk of water, or better still, to avoid the risk of precipitating any portion, with equal parts of alcohol and water. If the preparation be made for use with canvas, of course it will be made of the proper strength at once; but if the mixed solution has been prepared for paper, it must be warmed, and the proper proportion of alcohol and water added, a little at a time, stirring briskly. The preparation thus diluted remains fluid, and requires but slightly warming for use.

Previous to applying it to the painter's canvas, the prepared surface of the latter is sponged with a little alcohol, to remove dust or grease, and prevent any tendency to repel the sizing solution. When the surface is dry, the lac and gelatine solution is applied smoothly with a sponge. This surface dries in a few minutes, and the silver solution is applied with a tuft of cotton-wool.

I should observe here, that ammonio-nitrate of silver is on no account to be used in exciting the canvas, as the alkali, rapidly acting on the priming of the canvas, would penetrate and dissolve it. The silvered surface being dry, the canvas is placed under a negative, and exposed, the printing being more rapidly effected than with albumenized paper. When sufficiently deeply printed, the canvas is turned up at the edges, and secured at the corners by spring-clips, so as to form a dish. Into the dish, so formed, the hyposulphite fixing solution is poured, and suffered to remain about ten minutes. Mr. Lothian informed me that by observation he had arrived at a criterion of perfect fixation. When the surface is so thoroughly permeated by the fixing solution that it felt slightly soft and yielding when pressed by the finger, instead of being perfectly hard and rigid, experience has proved that the image is perfectly fixed. One corner is then released, and, after pouring away the hypo, the surface is washed for a quarter of an hour by means of a flexible tube attached to the water pipe, care being taken, at no stage of the proceedings, to wet the back of the canvas.

No toning is necessary, as the image, when fixed only, is of a rich, warm, purple-brown tint, well suited to the purpose of the oil painter.

It will be seen that in this form of canvas, photographic printing direct from the negative is contemplated. Where enlarging is necessary, an enlarged negative is used, and a direct print produced therefrom. There is little doubt, however, that by the use of iodides and bromides, the surface, prepared with the same sizing solution, might be made sufficiently sensitive for solar camera-printing, by development.

A Modified Intensifying Formula. — A Danish correspondent, the other day, sent me an excellent example of the operation of a modified intensifying process he had been trying. The example consisted of a transferred negative film, a reproduction of a page of printed matter. The dense parts were perfectly opaque, and the transparent parts perfectly clear, showing the process to be well suited for intensifying negatives of subjects in black and white. The solutions employed consist of a modification of those used in the ferridcyanide and uranium intensifier. My correspondent, Mr. Otto, says:

"After developing and intensifying with iron, the plate is fixed with cyanide, and thoroughly washed. Then, to a dilute solution of chloride of gold is added a few drops of the ferridcyanide intensifier, with uranium in excess. This is then poured over the plate, and off and on until the desired density is attained. A very dense black precipitate is the result. If too much ferridcyanide is present, the plate gets blue; and if not sufficient, gold red brown."

GERMAN CORRESPONDENCE.

On the Production of Negatives by Collodio-Chloride of Silver—Monckhoven's New Apparatus for Producing Artificial Light for Enlargements—Monckhoven's Formula for Making Enlargements (to be continued)—New Printing Processes, a la Albert.

TO-DAY I have to report the very interesting discoveries of my friend, Monckhoven, in Vienna. The name Monckhoven has a familiar sound to most photographers. For years he has labored to improve the apparatus used for enlarging, and recently he has placed a new discovery before the public, the merits of which have been fully tested by him in his private experiments. The perfection of the copying processes go hand in hand with these experiments, and, particularly those which have reference to enlarged pictures. Of particular interest in this direction, are Monckhoven's experiments with collodio-chloride of silver. I have stated, in a former letter, what important part it plays in the reproduction of negatives, at the same time calling attention to the precautions necessary to insure success. Monckhoven, also, has studied this process, and found that a plate of collodio-chloride of silver has great tendency to solarization. This circumstance prevents vigorous copying, which, of course, is necessary for obtaining intense plates. He has found that this tendency to solarization can be avoided by fuming the plates with ammonia.

He gives his formulæ, which are much more simple than those communicated by me, and which originated with Mr. Ost.

A.

NORMAL COLLODION.

Cotton,	1 gram.[*]
Ether,	40 cubic centimetres.[†]
Alcohol,	40 " "

To be decanted after settlement.

B.

Chlor. of Magnesium,	1 gram.
Alcohol,	10 cubic centimetres.

This solution is to be filtered.

C.

Nitrate of Silver,	20 grams.
Distilled Water,	30 cubic centimetres.
Alcohol,	70 " "

The solution must be filtered.

D.

Citric Acid (pow'd),	18 grams.
Boiling Water,	18 "
Alcohol,	162 cubic centimetres.

To be filtered.

Take a bottle, of brown or orange-colored glass, pour into it 600 cubic centimetres of solution A, and 50 cubic centimetres of solution B; shake it well; then add 60 cubic centimetres of solution C, and finally, after shaking for a few minutes, add 40 cubic centimetres of solution D. The collodion has to stand for eight or ten days before being fit for use; it improves with age.

The plates are prepared by coating them with albumen (white of egg beaten and decanted), which has been diluted with its bulk of water; after they have dried they are coated with collodion. The collodion is poured on very slowly, in order to obtain a thick layer; when the plates are dry they are fumed with ammonia.

The ammonia is poured in a watch-glass, which is placed on the bottom of a horizontal box; the plate is placed four inches above the ammonia, and left to fume for three minutes; after removal the plate is exposed to the air for half an hour before it is placed in the copying frame.

Otherwise, you can proceed in the same manner as specified in my former letter. Toning is not necessary, but it is essential that the proportions given in the above formulæ should be strictly followed. An excess of chloride of magnesium will diminish the sensitiveness. An excess of nitrate of silver will produce crystals of silver on the sensitive film.

By the aid of this process, Monckhoven begins by making a positive transparency. The positive is enlarged in his apparatus, in order to procure a negative, which is multiplied in the usual way.

He uses for the production of the negatives, when the enlargement does not exceed 45 x 49 centimetres, the ordinary collodion process; for a larger size he makes a paper negative; thus, through him, the old and long-neglected Talbot process is installed again in its deserved honorable position.

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[*] 1 gram = 15.434 grains.

[†] 1 cubic centimetre = 1 gram of water = 15.43 grains = 17 minims.

His formulæ are simple. Ordinary Saxe paper is prepared in the following bath:

Water, ...	1000 grams.
Iodide of Potassium, .	15 "
Bromide " . .	5 "

It is sensitized as follows:

Water, ...	1000 grams.
Nitrate of Silver, . .	70 "
Glacial Acetic Acid, .	70 "

The exposure, in his new apparatus with artificial light, is five minutes; the development proceeds in the following manner:

Water, ...	1000 grams.
Citric Acid, . . .	4 "
Pyrogallic Acid, . .	2 "

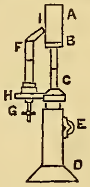
After development the picture is fixed and washed, and forms a negative which can be retouched and printed in the ordinary way.

But we will now proceed to the main point, to Monckhoven's new enlarging apparatus with artificial light. This apparatus has created the greatest excitement in Vienna. He made, before the Photographic Society, in a few minutes, a life-size negative, and also a positive of the same size, and everything succeeded so perfectly that one of the best known Vienna solar printers bought the apparatus at once for a thousand guilders, so as to be able to print during the sunless winter months by artificial light.

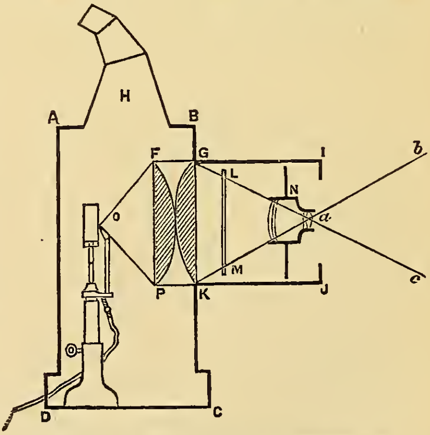
He has already made pictures for sale. The first impressions, life-size, sell for ten guilders; extra copies, at six guilders apiece. A very reasonable price, indeed.

When we take into consideration that, with us, during November and December, the sun is hardly ever visible, and the enlarging business, during this part of the year, is at a perfect stand-still, this discovery becomes of the utmost importance.

The artificial light which he employs, is common house-gas (carburetted hydrogen), mixed with oxygen gas. The latter has to be prepared beforehand. One kilogram[*] of chlorate of potash, is mixed with ½ kilogram of calcined and pulverized black oxide of manganese. The mixture is heated in a retort, the oxygen escapes rapidly, and every kilogram will produce 270 litres[†] of oxygen. The gas is collected in an India-rubber bag, and the bag is connected with the lamp (see cut) in the following manner: the tube conveying the oxygen is screwed on at G; the tube conveying the house-gas is attached at H; both gases will mix at the point C, and produce a very intense heat. To the heat of this flame a cylinder, A B, is exposed. The cylinder is composed of oxide of titanium, magnesia, and carbonate of magnesia. The light is, according to Monckhoven, of greater chemical intensity than the Drummond lime light, or the recently proposed Zirconia light; it does not smoke like the magnesium light, and is very cheap. The titanium cylinders sell for thirty centimes apiece, and the expense of the gases, oxygen and house-gas, amounts to about two francs per hour.



The light is placed in the focus of a system of lenses, F, P, K, G (see cut below); these



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[*] 1 kilogram = 154,34.023 grains.

[†] 1 litre = 2.1135 pints.

concentrate the cone of light on the negative, L M, which is placed in the focus of the lens N.

As simple as this apparatus is, still it requires some practice before one becomes quite familiar with the working of it, and to obtain the best results with a given quantity of gas.

For all places where the enlarging business flourishes, this new apparatus, which makes the photographer independent of the weather, is of great importance. I have to remark, however, that Monckhoven not only makes enlarged negatives and chloride of silver positives, but he also makes, from ordinary negatives directly, enlarged positive copies by development.

He prepares the paper as follows:

Water, ...	1000	grams.
Albumen, beat to a froth,	100	"
Iodide of Potassium, .	15	"
Bromide " .	15	"

The paper is floated on this bath for three minutes; it is then dried and sensitized with the above-mentioned acetic acid silver bath. It is developed with the pyrogallic solution, also described above, and finally fixed and toned, in one operation, with—

Water, ...	1000	grams.
Hyposulphite of Soda, .	100	"
Chloride of Gold, . .	½	gram.

Besides this novelty, the mind of photographers is still occupied with Albert's new process, and, in order that the interest in this process shall not flag, a set of "inventors" spring up all over the country, who claim to have invented similar processes.

In Berlin the firm of Ohen & Grossman has engaged the services of an "inventor" by the name of Gehmoser, and, under his direction, they furnish half-tone prints, which equal, and, perhaps, excel, in sharpness and depth, those of Albert. The new invention is simply called "Lichtdruck" (light-print), to distinguish it from the Albertype. This firm sells the process to any one, on payment of one hundred thalers. The process must be identically the same as Albert's, and, perhaps, the competition will have the effect of bringing the whole matter soon to the knowledge of the general public, a result which would certainly be very desirable.

I have seen several pictures which certainly are surprising, and, beyond a doubt, the best which have ever been produced in half-tone prints, but still they are not as beautiful as silver prints, and I do not think that they will, for the present, supersede the latter; it is more likely that lithographing and photo-lithographing will be somewhat interfered with.

My friend Prümm visited recently Albert's printing establishment in Munich, and witnessed the working of the process. He feels convinced that the mechanical manipulations require a great deal of practice, and any one who purchases the process must not expect to produce, in the first few weeks, pictures that equal those produced by Albert himself. Another circumstance is not to be overlooked, either: it is that the printing-plates do not admit of retouching, and that they are exceedingly sensitive to dust; a small speck of dust is apt to produce a permanent stain on a plate.

In fact, all the prints have to be spotted out the same as ordinary photographs. Mr. Burchardt, a very experienced photolithographer, told me the other day, that the layer of gelatine, after repeated rolling with color, becomes finally so smeared with color that the production of clean prints becomes impossible.

To complete my communication, I have to mention, in conclusion, that the well-known chemist, Obernetter, in Munich, has published the principles of a new printing process, and the details are very curious.

A plate of glass is covered with a solution of gelatine, albumen, sugar, and chlorate of potash, exposed under a negative, and dusted over with zinc powder. The zinc powder adheres only to those places that have received no light, just the same as in Obernetter's enamel process. The whole plate is now heated and lighted, and coagulates. Finally, the plate is placed in acid; the acid develops with the zinc hydrogen; the hydrogen makes the places take the water again. If we place, now, a fatty ink on this plate, the ink will adhere only to those places where no zinc powder has attached itself, and thus furnishes a picture.

I have seen no specimen of this curious process.

Yours, very truly,
H. VOGEL, PH.D.

Philadelphia Photographic Society.

THE regular monthly meeting was held Wednesday evening, November 3d, 1869. The President, Mr. Frederick Graff, in the chair. Minutes of last meeting were read and approved. The report of the Treasurer was read and accepted. The Corresponding Secretary offered three letters from several English Photographic Societies, which were read and acted upon.

This being the annual meeting for the election of officers, the following named gentlemen were duly elected to serve for the following year:

Frederick Graff, Esq., President; Dr. Alexander Wilcocks, Vice-President; Mr. E. Borda, Vice-President; Mr. S. Fisher Corlies, Treasurer; Mr. John C. Browne, Recording Secretary; Mr. E. Wallace, Jr., Corresponding Secretary.

The President then appointed, as Committee on Publications, Messrs. Sergeant, Davids, and Browne; Room Committee, Messrs. Fassitt, Tilghman, and Borda.

The Secretary read a paper upon the subject of Comets.

Mr. Edward L. Wilson exhibited specimens of the three photographs for which prizes were recently awarded to Messrs. Griswold, Watson, and Van Aken. Also, a specimen of china decorated by several burnt-in photographs, sent to him by Herr Ludwig Schrank, and made by J. Lëthe, of Vienna. Also, a large number of prints, made at Munich by the Albert process. Although very interesting, and beautiful examples of the Albertype, yet the tone of almost all of the prints seemed cold, resembling the appearance of an over-toned silver picture.

Mr. Wilson then exhibited a great variety of glass and paper prints, produced by the Woodbury process, ranging in size from 9 × 11 to stereoscopic. It was the general expression of opinion that they were the finest pictures ever exhibited before the Society. Perfect in light and shade, of exquisite tone and brilliancy, leaving nothing desirable but color to make complete pictures.

On motion, a vote of thanks was tendered to Mr. Wilson for his continued efforts in securing subjects of interest for the examination of the Society.

Mr. Browne moved that the resolution passed at the meeting in June last, in relation to the rules for the award of prizes to be competed for in December, be amended to read, "That the size of the competing pictures shall not be limited to $6\frac{1}{2} \times 8\frac{1}{2}$, but that negatives or prints of any size shall be admissible." Carried.

On motion, adjourned.

JOHN C. BROWNE,
Recording Secretary.

Boston Photographic Society.

THE regular monthly meeting was held at Black's Studio, 173 Washington Street, Boston, November 2d, 1869.

The meeting was called to order by the President, G. H. Loomis.

The records of the last meeting were read and approved.

Mr. Black, chairman of the committee appointed to invite Prof. Cook, of Harvard University, to deliver to us a lecture on photographic subjects, reported that Prof. Cook had just returned from Europe, and would, ere long, give us the lecture. That, at our next meeting, he (Mr. Black) would show the Society the most compact and beautiful apparatus for taking views (which Prof. Cook had brought home with him), that he had ever seen. It weighed, complete, only twenty pounds.

He also gave notice that, at the next meeting, he would try and exhibit some transparencies in his stereopticon, and invited all the members to bring specimens from their negatives, to be exhibited.

Mr. E. L. Allen made remarks upon the advancement of photography in Boston and vicinity. He said he could see very great improvement in the work of very many of the artists, and we were making better pictures, in Boston and vicinity, to-day, than ever before. The cause of this he attributed to the influence and impetus given by seeing the beautiful pictures in the National Exhibition. Allusion was made to the exhibition of photographs at the recent fair of the Massachusetts Charitable Mechanics' Association, as being a very inferior exhibition, and much below what the photographers should have made it. He concluded his remarks by reading to the Society a very interesting autobiographical sketch of his photographic life.

The subject for discussion of the evening, "Photographic Paper," was then taken up:

Mr. Burnham likes a hard paper, of fine texture and rather thin.

Mr. Allen has mounted very many foreign views, made on entirely different paper from any that is used in this country. Thinks that the imported paper used here is not so good as is used in Europe, but of an inferior quality, manufactured expressly for this market.

Mr. Black agrees with Mr. Burnham, as to the quality of the paper we want.

Mr. Wing asked if any one present knew of any manufacturer of photographic paper who was a practical photographer?

Mr. Tupper uses "Medal" paper, and it works the best of any he can find.

Mr. Loomis recommended Trapp & Münch's German Albumenized Photographic Paper, introduced into this country by Willy Wallach, of New York. It has a beautiful, glossy surface, works well, and is very even through the ream. It has merits others do not seem to have. One drawback was mentioned: that of blistering after fixing, which was remedied by passing through a solution of salt before washing.

He gave us a sketch of a trip he had just made to New York and Philadelphia. Visited the new and elegant studios of Messrs. Gurney, Bogardus, Kurtz, and others, all of whom were making fine work. Also found the art progressing in Philadelphia. Noticed no harmony existing between photographers in New York or among those of Philadelphia, as there should be.

Mr. Black stated that Mr. Marshall and Mr. Allen had brought beautiful specimen pictures for the album, both from retouched negatives.

Mr. Allen exhibited some beautiful copies of drawings of large size, together with the paper negatives and the original drawings made by Mr. L. E. Walker at the Patent Office, at Washington, D. C. The whole of them were beautifully executed, and quite interesting and instructive.

Mr. John Dunmore was expected to have given us an account of his recent trip to the Arctic regions, but did not appear till after the meeting adjourned.

Mr. Black was sorry for Mr. Dunmore's absence, but understood Mr. Dunmore had written an account of the trip for the *Philadelphia Photographer*, which would probably appear next month, when all the members could have the pleasure of reading it.

Mr. Black also exhibited some pictures he had just received from Mr. Woodbury, made by the Woodbury process. They were beautiful. He gave us a description of both the Woodbury and Albert processes.

Mr. Lovejoy, of Stepney Depot, Connecticut, made a statement in relation to his being sued by the Shaw-Wilcox Company, for alleged infringement on their patent rights.

The Secretary read a circular, to be issued by Mr. Lovejoy on the above subject, asking aid, from the photographers of the country, to help him resist the unjust claims of this company.

Conversational remarks were made on the subject, by Messrs. Wing, Burnham, Loomis, Low, and others.

A number of the members present contributed to aid Mr. Lovejoy, and all expressed interest in the matter.

The views taken by Messrs. Dunmore and Critcherson on their Arctic expedition, were shown during the meeting, and attracted very much attention.

Voted to adjourn.

Frederick C. Low,
Secretary.

Will those who are posted kindly give, through your pages, instructions for coloring magic lantern slides? and greatly oblige Many Subs.

Philadelphia, November, 1869.

VOICES FROM THE CRAFT.

St. Louis, October 20th, 1869.

You will prevent many others, perhaps, from suffering loss, by publishing the annexed letter, and oblige,

J. H. Fitzgibbon.

Messrs. Shaw & Wilcox, Bridgeport, Conn.

Gentlemen: It is now over three months since your agent was here and got my silver waste and forwarded to you, and I have not had any returns from you. I have written to you near a month ago, and you were not gentlemen enough to answer my letter of inquiry. Now I wish to know if I am to get any returns at all, and, if so, when? Or, am I to be added to the list of those that have just cause to complain? If you cannot do business more promptly, you had better quit, and let others do that which you are not competent to do.

My waste was from over twenty pounds of silver, and I don't feel satisfied to let the matter rest any longer without knowing the cause. If I do not hear from you in a reasonable time (after ten days), you shall hear from me through another source. Respectfully,

J. H. Fitzgibbon.

N. B.—Your agent promised me I should have my returns within thirty days from shipment. The waste was forwarded by Adams Express, July 15th, 1869.

(Duplicate letter to Shaw & Wilcox, mailed October 20th, 1869.) No answer yet.

Norwich, N. Y., November 10th, 1869.

Dear Sir: Thinking that perhaps an account of the way in which Messrs. Shaw & Wilcox have treated me, may be of use to some of the less gullible of the photographers, I write you my experience. Nearly a year ago, at the solicitation of the agent of Messrs. Shaw & Wilcox, I consented to the insertion of one of their tanks on trial. About four months since, the agent collected the residues, and, since that time, I have heard neither from Shaw & Wilcox, or their agent, although I have written twice requesting a return. Another photographer, in this place, has been *beat* even worse than I have, by the same parties. Their agent collected nearly four years' clippings and washings. If the same party that put the tank in had not been the one who took out the residues, I should think that perhaps I had been swindled by some outside party. If this is of any use, you are at liberty to publish it, with my name.

Respectfully yours,

Charles Stafford.

Since the above was in type, we have received the following from Mr. Stafford:

Norwich, N. Y., Nov. 18th, 1869.

Dear Sir: Inclosed you will find a letter from the Shaw & Wilcox Co., giving statement of returns from nearly six months' wastes, which they took from us to refine. You will perceive, they do not make *cash returns*, but "*credit on stock.*" Our business during the six months averaged about $80 per week; so you can judge of the amount of returns I *ought* to have had.

Charles Stafford.

The Shaw & Wilcox Co.'s Letter.

Bridgeport, Conn., Nov. 16th, 1869.

Messrs. Wells & Stafford.

Gentlemen: We have worked your waste, and have recovered therefrom sink 2 oz. metal

silver, at 1.60 per oz., ...	$3.20
Charging 25 per cent. for working, . .	.80
Your due, . .	2.40

Which amount we credit you on stock.

Yours, respectfully,
The Shaw & Wilcox Co.
Per Kinney.

Comment on the above is unnecessary.

We have repeatedly cautioned our readers against being swindled out of their wastes by unreliable parties, and it is only just that they should suffer if they yield to the persuasions of pretenders. Why *should* you give your wastes to any talkative straggler that comes along, a perfect stranger to you, instead of sending them to your chemist or stockdealer to care for for you?

Boston, October 15th, 1869.

Mr. Editor: I believe the day of secret processes has passed, and I want to ask those who will, to give us their process for retouching negatives, in the next number of the Journal. I believe the operator is the proper person to do that work, as he must be more familiar with his sitters, and can carry out his ideas in lighting, and give more truthful representations than he will get if he allows the negatives to go out of *his* hands before they are finished. We may get poor results at first, but, in time, we may succeed. It will be excellent practice for us all, and cause us to pay more attention to our negatives and manipulations, and, perhaps, bring out much talent which would otherwise forever remain uncultivated. Let each one give his process in as few words as convenient, to make all clear, and I am sure it will make as valuable a number as we have had this season, although each number is worth many times its cost.

E. J. Foss.

WRINKLES AND DODGES.

In a recent number of your *Philadelphia Photographer*, in this column, you gave an incorrect description of the mode of making the developer which I recommend.

The first time I made the developer, it was compounded as follows: I made two solutions, one of Cox's gelatine, ten grains to the ounce of water; the other fifteen grains of tannin to the ounce of water. Into an ounce of the former, while warm, three drops of the latter were put, and then the gelatine solution was thoroughly shaken, and the precipitate redissolved. This latter compound was then used to add to the developer—one drop of it to an ounce of the ordinary iron developer. The addition of this small quantity of organic matter has a remarkable effect, and produces a developer which should be extensively used.

It is very economical, as the same developing solution, by filtering, can be used over and over again. In cold weather it is important to warm it slightly before using it.

It is evident that the same materials may be mixed in other ways, and in different proportions, but I have never found any combination better than the first experimental one. Yours respectfully,

H. T. Anthony.

Salad for the Photographer.

Please read our Prospectus for 1870.

The Executive Committee are preparing their Memorial to Congress for a charter, copyright, etc.

The Annual Exhibition of the Photographic Society opened in London, November 9th.

Mr. A. L. Henderson is exciting English photographers with *another* ready-sensitized paper.

There are six new books announced by a London publisher, to be illustrated by photographs. One of them is the fourth edition.

Every copy of the group you buy, of the Members of the National Photographic Association, taken in Boston, contributes one dollar to the Relief Fund.

The Ethnological Society of London is making arrangements to take photographs of specimens of all races of men in all parts of the globe.

Enterprising photographers, in Paris, have recently been selling photographs of the illustrious Hungarian, Mr. Deak, as the Pantin murderer, Kinek.

Sir David Brewster shows that Euclid knew the fundamental principles of the stereoscope, which was also described by Galen fifteen hundred years ago. Nothing new under the sun.

A subscriber says the group-picture of the members attending the June meeting of the National Photographic Association, is worth ten dollars. The gentleman with gray hair, sitting on the ground in the foreground, is Prof. Towler, and the gentleman behind him, with a white hat, is President Bogardus.

A Western subscriber urges upon his townsmen the "duty" of getting their pictures made at his establishment, "that those around, and who may come after us, can look with pride upon our shadows, and yearn once more to grasp the substance."

"Pictures of Silver" are mentioned in Proverbs 25:2, "Asa took high places and sun-images."—"Cruden's Concordance" on 2 Chron. 14:5.

Editor's Table.

"SUBSCRIPTION EXPIRED."—Those who find these words upon their wrapper this month, will please take the hint. The January number will be an elegant one, and issued early.

Please read our leader on the first page of this issue, and our prospectus on the cover.

WE give 48 pages with this number, including index, making it equal to a number and a half.

WE hoped to have presented herewith *fac simile* engravings of one of the prize medals, but the artist did not complete his work in time. They shall be in our next.

OUR PREMIUMS.—We have revised our list of premiums for 1870, as will be seen by referring to page 3, of the cover; and we hope our subscribers will make large demands upon us for them. We have added Prof. Himes's Glimpses at Photography, as an extra inducement for a single subscriber. This work is a really valuable one to every photographic printer, being full of useful formulæ, and hints on and for printing. Secure a copy, if you are wise, before they are all gone.

MEDALS AWARDED TO PHOTOGRAPHERS BY THE MASSACHUSETTS CHARITABLE MECHANIC ASSOCIATION.—The following awards were made by the Executive Committee of the Massachusetts Charitable Mechanic Association, Boston, agreeably to the suggestions of the Committee on Photography, of which we had the honor to be a member:

Gold Medals: J. W. Black, for photographs of the Coast of Labrador and of Icebergs; John A. Whipple, photographs of the Solar Eclipse, 1869.

Silver Medals: E. L. Allen, photographs; George K. Proctor, invention for making photographs at night.

Bronze Medals: G. H. Loomis, photographs; H. G. Smith, photographic copies of statuary and engravings; Thomas Gaffield, leaf, fern, and other "nature prints."

Diploma: Chas. Bierstadt, stereoscopic views of Niagara.

Each medal was accompanied by a diploma also.

The photographs, for which these awards were made, were reviewed in our October issue.

MR. J. M. ELLIOTT, Columbus, O., desires us to say that the premiums he received were awarded at the *County*, and not the State Fair, as we stated in our last.

PREMIUMS AWARDED *at the Thirty-eighth Annual Fair of the American Institute, held in the city of New York, October,* 1869, *on Photography, etc.*

First Medal and Diploma: W. Kurtz, 872 Broadway, N. Y., for collection of photographic portraits in color and India-ink.

First Medal and Diploma: Charles Bierstadt, Niagara Falls, N. Y., for plain stereoscopic views.

First Medal and Diploma: C. D. Fredericks & Co., 587 Broadway, N. Y., for large-size colored photograph portraits.

First Medal and Diploma: G. G. Rockwood, 839 Broadway, N. Y., for large-size, out-door, plain photographs and solar camera portraits.

First Medal and Diploma: S. N. Carvalho, 765 Broadway, N. Y., for large-sized ferrotypes.

Second Medal and Diploma: S. A. Holmes, 575 Broadway, N. Y., for large, plain photographs of cattle and outdoor work.

Second Medal and Diploma: Henry Merz, 93 Essex Street, N. Y., for plain photographic compositions.

Second Medal and Diploma: Peter F. Weil, 643 Broadway, N. Y., for stereoscopic views.

First Medal and Diploma: Alexander Becker, 560 Broadway, N. Y., for revolving stereoscope and stand.

Second Medal and Diploma: Edward L. Wilson, Philadelphia, Pa., for a photographic head and body rest.

MR. A. LESAGE, Dublin, Ireland, has favored us with some very beautiful cartes from retouched negatives, that rival Mr. Reutlinger and the Germans. They are very soft and delicate, and yet round and vigorous. Mr. Lesage announces that he has, in his employ, an operator from Mr. Reutlinger's studio, which partly accounts for the excellence of the samples sent us. He seems to have an excellent light. These are the first "colleens" we have had the pleasure of seeing, and, if they are fair examples of the work made in the Emerald Isle, it is a green spot in the photographic art as well as in the world.

MR. WILLIAM KURTZ took the first prize at the Fair of the American Institute, New York, for his exhibition of photographs. With a generous recognition of the fact, that, to the skill of his assistants, a great part of the conspicuous merit of his work was due, and, that those who labored in the cause should share the victory, he invited them, recently, to a social evening entertainment, in honor of the event. If this excellent and hospitable example were recognized and followed, craftsmen would be certain to take an increased interest and pride in their labors, and, in the success of those for whom they worked.

Mr. J. H. Vail, Middletown, O., sends for the second edition of "How to Paint Photographs," and says: "I have the first edition, and consider it well worth the price. I want the second, too. Every photographer should have it."

Cyclopædic Science Simplified. By Prof. J. H. Pepper, London. We desire to commend anything to our readers that will enable them to gain any information useful to them, in their efforts to improve and work up to a higher standard in their profession, and, therefore, recommend Prof. Pepper's new work, especially the first part, which is devoted to the subject of *Light*, and to the last part, devoted to the subject of *Chemistry*. The book contains quite 700 pages, and over 600 first-class illustrations. It is a marvel in its way, both in style and cheapness. Prof. Pepper, it will be remembered, is the inventor of the celebrated *Ghost* illusion, the floating head, sphynx, etc., etc., and, in his work, explains, with diagrams, all such experiments. First, on the subject of Light, he treats upon the theory, sources, diffusion, reflection, and refraction of light; lenses, optical instruments, the eye, the stereoscope, persistence of vision, height and color, spectrum analysis, aberration, distortion, dispersion, polarization, etc., etc., etc., all subjects that cannot help but benefit immensely every photographer wise enough to study Prof. Pepper's lectures upon them. The subject of Light is followed by others on Heat, Electricity, Magnetism, Pneumatics, Acoustics, and, finally, *Chemistry*. The last covers the subject completely in graphic style, amply illustrated, and gives full details of the sources and qualifications of oxygen, nitrogen, hydrogen, chlorine, iodine, bromine, potassium, sodium, ammonium, gold, silver, magnesium, and all the metals used and not used in photography. If photographers would familiarize themselves with the information given in this invaluable book, on the subjects of Light and Chemistry alone, they could work more understandingly and less in the dark; consequently, they would have less annoyance, fewer failures, and better work; moreover, when they failed they would know why, and the sooner be able to detect the cause. The book has been of such value to us that we have added it to our catalogue, and are prepared to furnish it at the publisher's price, $4.50. Copies will be mailed on receipt of price.

Appleton's Journal.—A weekly journal of Literature, Science and Art; New York, D. Appleton & Co; $4 per annum. We have frequently commended, to our readers, the advantages of studying works of art, good engravings, etc., to assist them in educating their eyes and minds on the subject of posing, lighting, composition, and selection of view. There are many opportunities of doing this in the cities, but those at a distance are not so privileged. *Appleton's Journal*, however, is a capital means of doing this. It is a *new* journal, having reached No. 35 only at this writing, and, besides its tasteful and entertaining reading matter, is very amply illustrated by first-class wood-cuts and steel engravings. These are not of the sensation order, that characterizes the major portion of our illustrated periodicals of the day. The conductors have advanced in a different direction, and give us something to study and elevate —cuts from paintings of celebrated artists, cartoons of various subjects, steel engravings of American scenery, portraits of eminent men, drawings of public buildings, and subjects of that nature, that must teach all, who are susceptible of being taught, and improve all who will study them. We commend it heartily to our readers, as a journal in advance of anything of its kind known to us.

Mr. B. E. Hawkins, Sheboygan, Wisconsin, in sending us a new subscriber, says: "He is a German, and reads English very imperfectly; but says he has got friends who will read the *Photographer* to him." That German friend is bound to live up to his privileges, and he will succeed.

The Prize Prints.—A great many are availing themselves of the opportunity of securing sets of the competing prints, as announced by us in our last, viz., the whole of them, *thirty-seven* in all, for $4.50; or the *genre* set (*thirteen*) alone for $1.75; the portrait set (seventeen) for $2.25; or the landscape set (seven) for $1. Mr. Jno. A. Todd, Sacramento, California, who secured the first set, writes us: "Indeed, I would not take $50 for my set, if I could not replace them. 'Sermons in stones,' you know." It is assuredly instructive to study them, with the remarks of the judges.

Mr. Michel Clements, Photographer, Sheboygan, Wisconsin, died, November 3d. He was well known and much esteemed by the fraternity in that section.

We append a letter from Mr. C. C. Schoonmaker, which came too late for insertion among the "Voices," and hope it will receive the *substantial* notice of every photographer who would be free from impositions.

"You probably have heard that Wing & Co. have carried their plate-holder case up to the U. S. Supreme Court at Washington. They have been some time in getting around to it, for they had to give bail ($2500) for the cost, and that has given them considerable trouble to find the individuals who own real property who would go their bail; but they succeeded, and the case is docketed for trial at Washington. You can, as well as myself, see the point of their proceedings,—it is to get time to stave off settlements with their dupes all over the country, who have paid them money under the pledge that their patent was valid and would be sustained, and if it was not, that they should send them their money back. Under these promises they began to have a great many applicants, and as they never meant to pay back any money or to be in condition to be forced to do so, it is very evident what they mean by carrying it up to the Supreme Court. They have gone as far as to demand settlement (and threaten suits if they do not) against photographers in the city of Providence and other places in the East, saying that they have carried up their case, and that there is no doubt but what they will beat me, etc., and one man has been foolish enough to pay them one hundred dollars. How long they can play this game depends upon the gullibility of the photographers, as they seem more willing to pay them one hundred and one hundred and fifty dollars for an imposition than they are me five or even three for fighting and killing the imposition. So far I have received less than one hundred dollars with no prospect of any more. It is pretty discouraging business for me, when a little of each one would not be felt by them, and in the aggregate would be quite an item, but to go on and spend at least a thousand more without any kind of a guarantee from those who are a great deal more interested (pecuniarily) than I am, seems too much.

If they sustain their patent it will be an absolute monopoly for the next seven years. My lawyers want at the lowest, six hundred dollars to argue this case, and their expenses. I shall have to go to Washington once or twice, and half a cord of camera-boxes and models have got to be transported to Washington, and a great many other expenses that meet me at every corner. Now, if I can be guaranteed at least three hundred dollars, I would go on cheerfully and see this through at any event, but it does not strike me that I ought to sacrifice any more of my means or time, for if I keep pace (for the next two years) with my expenditures for the last three, I shall not be in condition to pay any expenses for defending a patent suit, or anything else. I think I have done enough to satisfy the photographers I am in earnest, and worthy of their confidence.

I have had intimated to me by a party who pretends to be in the confidence of Wing & Co., that if I would withdraw from the contest and allow them to to take judgment and sustain their patent, that I could have all of my expenses paid. But I shall have to receive more inducements than that before I shall, even with the little support and encouragement I have received so far from the photographers, entertain such an idea. The photographers have promised me a great deal, but their *promises* are cheap.

I do not intend that they shall stave this case off, but calculate to hold them right up to the scratch, and make them argue the case when it is reached, which will be this winter without doubt. My lawyers think it is the clearest case on record, and have no doubt of the result.

Yours truly,
C. C. Schoonmaker.

Troy, N. Y., November 22d, 1869."

Mr. E. H. Alley, Toledo, Ohio, sends us a very fair print from a dry plate of Dr. Hill Norris's make, which he purchased of Messrs. E. & H. T. Anthony, May 27th, 1861, and which he exposed in September last,—more than eight years after the purchase. The exposure was made in two minutes, with a Darlot 1-9 stereoscopic lens, smallest stop, of a church, and the negative seems to have had ample time. The foliage, and general detail, are good, and the picture really softer and better than some prints we have seen from recent negatives. "How long will a dry plate keep?" is a query still unanswered.

How to Color Magic Lantern Slides.—A correspondent is desirous of knowing the best method of coloring magic lantern slides. Will those who are practised in the art, kindly inform him through our pages?

Received.—From Mr. E Baldwin, Lawrence, Kansas, a carte of a lovely little boy, in a pretty attitude, and a photograph of seven apples, which measure, on an average, ten inches in circumference, and all grown on a stem 1-6 inch in diameter. The "shadow" makes us long to "secure the substance."

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